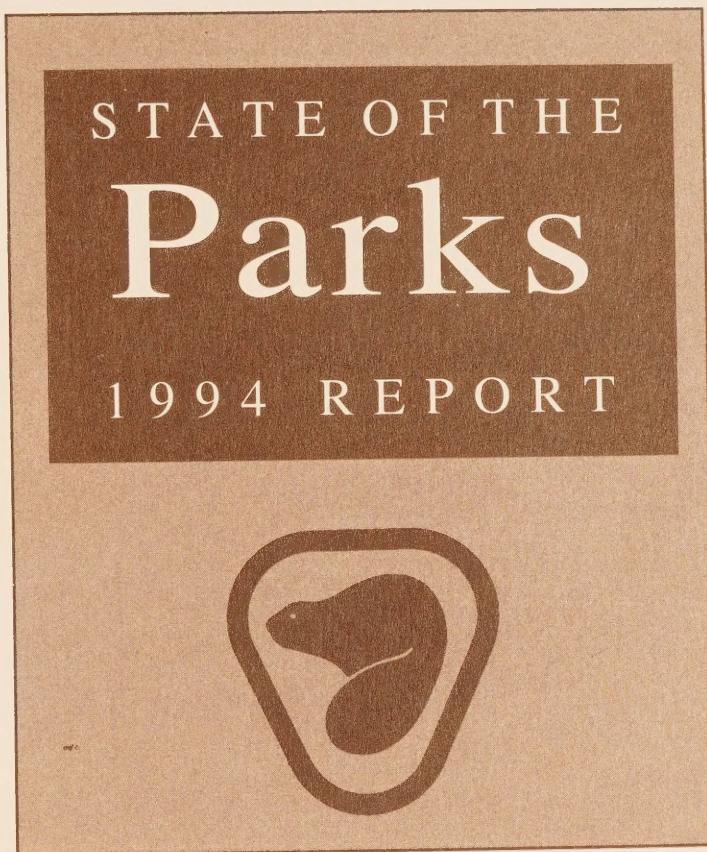


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STATE OF THE
Parks
1994 REPORT



Parks Canada
Canadian Heritage

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For more information, contact

Sector Coordination
Parks Canada
Department of Canadian Heritage
6th Floor
Jules Léger Building
25 Eddy Street
Hull, Quebec K1A 0M5
Tel.: (819) 994-1341
Fax: (819) 994-1313

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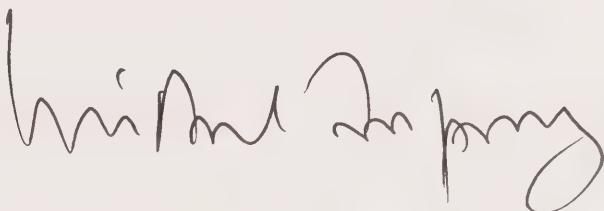
MINISTER'S MESSAGE

Canada's national parks and national historic sites are known worldwide as places where Canadians and people from other countries can experience and appreciate Canada's rich heritage.

We can be proud that Canada has protected these special places. Yet we must, at the same time, be aware of the ongoing challenges we face in preserving our ecological and historical landscapes. It is important that those of us entrusted with preserving and presenting natural and human heritage recognize that heritage areas, along with the environment at large, are under increasing pressure. Part of our task is to monitor the condition of existing parks and historic sites, and to work with others toward a sustainable future.

As the Minister for Canadian Heritage, I am pleased to present the *State of the Parks, 1994 Report*. It gives me the opportunity to focus attention on some of the achievements of Parks Canada and its partners across the country.

Co-operation among all stakeholders is becoming increasingly important. We know that governments alone cannot relieve the technological, human, and environmental stresses on our heritage resources. With the help of Canadians, the Government of Canada will be able to both maintain and expand heritage areas, and to foster the creation of a world where these areas can continue to bring enjoyment and enlightenment.

A handwritten signature in black ink, appearing to read "Michel Dupuy".

Michel Dupuy
Minister of Canadian Heritage

INTRODUCTION

Parks Canada's integrated national parks and national historic sites systems — among the most comprehensive and advanced in the world — are the focus of much national and international attention.

The *State of the Parks, 1990 Report* was the first formal response to the legislative requirement of reporting to Parliament on the state of the parks and on progress toward establishing new parks. It reported on both the national parks system and the national historic sites system.

The 1990 report highlighted work on creating new parks and historic sites. Volume II of the report contained profiles with detailed information on the existing parks and historic sites. That information included location, size, access, principal threats, opportunities, presentation programs, and partnership activities.

1994 REPORT

The 1994 report has a twofold focus: 1) the state of existing parks and historic sites, and 2) progress toward measuring the condition of these places. This report contains profiles for 2 new national parks and 19 national historic sites not reported on previously. It does not include the profiles of the 1990 report, but reflects some of the more significant changes since 1990. The full set of profiles may be republished in the future, should there be substantial overall change to report.

The *State of the Parks, 1994 Report* gives an account of the progress made in assessing the condition of Canada's national parks and national historic sites. It describes how the concepts of ecological and commemorative integrity — introduced in the 1990 report — have been refined so that

appropriate indicators can be developed. The working definitions of these concepts are presented, along with a description of how they are being applied to better understand the condition of heritage areas.

The 1994 report also addresses progress made in completing the systems and follows up on a number of commitments set out in the 1990 report.

Data in the report is up to date as of March 31, 1994.

LATE-BREAKING NEWS

Several significant accomplishments since the March 31st, 1994, reporting timeframe are highlighted below:

National parks and marine conservation areas

- The Minister announced in February 1995 that agreement has been reached to withdraw lands for the proposed Tuktut Nogait (Bluenose) National Park in the western Arctic (NWT) in order to provide interim protection.
- Community consultations have been initiated on the Wager Bay National Park proposal, located on the western shore of Hudson Bay (NWT).
- Final negotiations are under way to establish a national park on northern Baffin Island (NWT).
- A feasibility study for a new national park on north Bathurst Island in the Arctic Islands (NWT) has been initiated.
- With respect to the Churn Creek national park area of interest, British Columbia announced its final Cariboo-Chilcotin Land Use Plan in October

1994; the plan includes the establishment of two new protected areas that encompass lands equivalent to about half of the national park area of interest.

- Elsewhere in British Columbia, federal and provincial officials are exploring ways of working co-operatively to represent the Strait of Georgia Lowlands Natural Region and the Strait of Georgia Marine Region.
- Nomination of the Restigouche River (55-km stretch) in New Brunswick as a Canadian Heritage River was accepted, January 1995.
- Tatshenshini-Alsek Wilderness Provincial Park, B.C., was designated as a World Heritage Site, December 1994.

National historic sites

- Monument Lefebvre National Historic Site was transferred from the Department of Public Works to the Department of Canadian Heritage in January 1995. Located in Memramcook, New Brunswick, the site is a symbol of the Acadian renaissance.

- The Minister announced in August 1994 that the Government of Canada would contribute to the restoration of Saint George's Anglican Church in Halifax under the National Historic Site Cost-Sharing Program. This national historic site was badly damaged by fire in June 1994. Monies have been raised across the country to support the restoration effort.
- In August 1994 the Minister announced the establishment of an Advisory Panel on the Future Development of Grosse Île National Historic Site, in response to widespread interest that was expressed during national consultations on the commemoration of the site.
- The Minister has approved a contribution of 1.3 million dollars for the commemoration of Manitou Mounds National Historic Site, in Fort Frances, Ontario. The site will be developed in partnership with the Manitou Rapids Band and the Province of Ontario under the National Historic Site Cost-Sharing Program.
- Sixteen railway stations across the country were designated by the Minister pursuant to the Heritage Railway Stations Protection Act.

PARKS CANADA PROGRAM INITIATIVES

INTEGRITY OF HERITAGE

In the 1990 *State of the Parks* report, the concept of integrity was presented as a basic and comprehensive objective for managing national parks and national historic sites. Integrity means completeness, soundness and unity — for both ecosystems and historic places. This general concept was applied to each component of the Parks Canada Program.

Commemorative integrity means ensuring that the resources that symbolize the significance of a historic site are not impaired or under threat, that the reasons for the site's national historic importance are effectively communicated, and that the site's heritage values are respected.

Ecological integrity is defined as the condition of an ecosystem where 1) the structure and function of the system are unimpaired by stresses induced by human activity, and 2) the system retains resilience in that its biological diversity and supporting processes are likely to persist. Maintenance of ecological integrity is a requirement for national parks set out in the National Parks Act amendments of 1988.

This report summarizes the state of the ecosystems and cultural resources under Parks Canada jurisdiction, as well as the progress made in developing criteria to measure both ecological and commemorative integrity.

PARTNERSHIPS

Parks Canada would like to see Canadians become more involved in parks and historic sites programs

and in making decisions about them. Partnerships are important to that vision.

Volunteers

Parks Canada's Volunteer Program is instrumental in helping fulfill the vision of involving Canadians. In 1993, approximately 3,000 individuals contributed over 90,000 volunteer hours to Parks Canada — a testimony to the growing awareness of heritage areas and the increasing desire of people to help. Partnerships with interested and willing individuals broaden Parks Canada's constituency and contribute to research, public information, resource protection, and management activities.

Co-operating associations

Co-operating associations — local volunteer groups that support Canada's national parks and national historic sites — have tremendous potential for involving Canadians:

- each year, more than 6,000 volunteer members contribute over 80,000 hours;
- in 1993, 36 co-operating associations generated four million dollars by selling products and services.

The Canadian Parks Partnership (CPP) — the nation-wide alliance of co-operating associations — and Parks Canada have completed year three of an aggressive marketing program with the corporate sector. The program has focussed on developing products, services, and corporate sponsorships. During the past two years the program reached over seven million Canadians and has generated over \$700,000. The revenue goes to the CPP Parks Fund, which has supported ten projects in national parks and national historic sites over the past two years.

From 1991 to 1993, the 30 existing co-operating associations were joined by 6 new groups:

- Gros Morne Co-Operating Association
- Fort Malden Volunteers
- Friends of Windmill Point
- Friends of Banff Fellowship
- Fort St. James Historic Park Society
- Friends of Bar U Ranch

But the marketing program goes beyond revenue generation. Its purpose is to create awareness of the value of national parks and national historic sites and helps build a public support base for protected areas especially among urban audiences.

Others

A discussion of partnerships would not be complete without referring to the individuals, corporations, heritage agencies, and governments that own the 621 national historic sites not administered by Parks Canada. Similarly, provincial and territorial park agencies, non-government organizations, universities and colleges, Aboriginal peoples, and businesses are important partners in the case of many existing and proposed national parks and park reserves.

ACCESS FOR ALL

It is not possible to "present" heritage places unless the public has access to them — either directly through visits or indirectly through books, films, or television.

In the mid-1980s, Parks Canada began to realize that many of its facilities and services were not conveniently accessible to persons with mobility, hearing, or sight disabilities. Early research revealed that significant portions of the population have disabilities and that addressing their needs would benefit all users. For example, a building with a ramp benefits not only people in wheelchairs, but also seniors and parents pushing strollers. Such realizations set Parks Canada on a major course to improve access for all.

Parks Canada has successfully completed the third year of a four-year implementation program to make its parks and historic sites more accessible to seniors and to persons with disabilities. Fourteen million dollars, provided by Treasury Board, have gone toward implementing changes. These changes were suggested in 118 individual plans detailing the upgrading required to each park and historic site in the system.

Because these access plans — completed within one year — were developed co-operatively with the major agencies that represent people with disabilities, Parks Canada standards for access are now being used throughout the federal government.

Two new publications — *Design Guidelines for Media Accessibility* (the first such guideline to be developed in the world on this topic) and *Design Guidelines for Outdoor Recreation Facilities* — were released in 1993 and 1994 respectively. Both are being distributed in arrangement with the Canadian Paraplegic Association.

GUIDING PRINCIPLES AND OPERATIONAL POLICIES

In March 1994, the Minister tabled in Parliament a revised policy document called *Parks Canada Guiding Principles and Operational Policies*. This document is the result of a three-year public policy review during which Parks Canada consulted with interest groups, other federal departments, provincial/territorial governments, Aboriginal peoples, and the public.

The new policies will provide direction for the Parks Canada program and will guide operational activities well into the 21st century. The policies, which emphasize protection and presentation of

heritage places and their associated resources, as well as partnership and co-operation with other governments and groups, received wide public support.

NATIONAL PARKS

National parks protect samples of major natural environments that represent Canada's natural heritage. From coast to coast, national parks preserve ecosystem diversity and critical wildlife habitat, celebrate the beauty and infinite variety of our land,

and offer gateways to nature, adventure, discovery, and solitude. Considering the significance of nature to the Canadian identity, national parks are indeed special places.

PROGRESS TOWARD ESTABLISHING NEW NATIONAL PARKS AND NATIONAL MARINE CONSERVATION AREAS

NATIONAL PARKS

By March 1994, Canada's national park system included 36 national parks and national park reserves, as well as 4 marine areas. These protected natural areas range in size from St. Lawrence Islands National Park, at 8.7 km², to Wood Buffalo National Park, which, at 44,802 km², is the second-largest national park in the world (Table 1 and Table 2).

Canada is divided into 39 natural regions — each with distinctive characteristics such as vegetation, physiography, and environmental conditions. These

natural regions provide the basis for selecting and establishing new national parks (Map 1).

Canada's goal is to create a national park to represent each of the 39 regions by the year 2000. Twenty-three are currently represented by national parks or reserves, and work is under way to establish new parks to represent the remaining 16 natural regions. This objective was first set out in the 1990 Green Plan. Since then, two park agreements have been signed: Aulavik National Park in the western Northwest Territories and Vuntut National Park in the Yukon. Land has also been withdrawn for a national park proposed on North Baffin Island (Figure 1).

Map 1 National Park Natural Regions

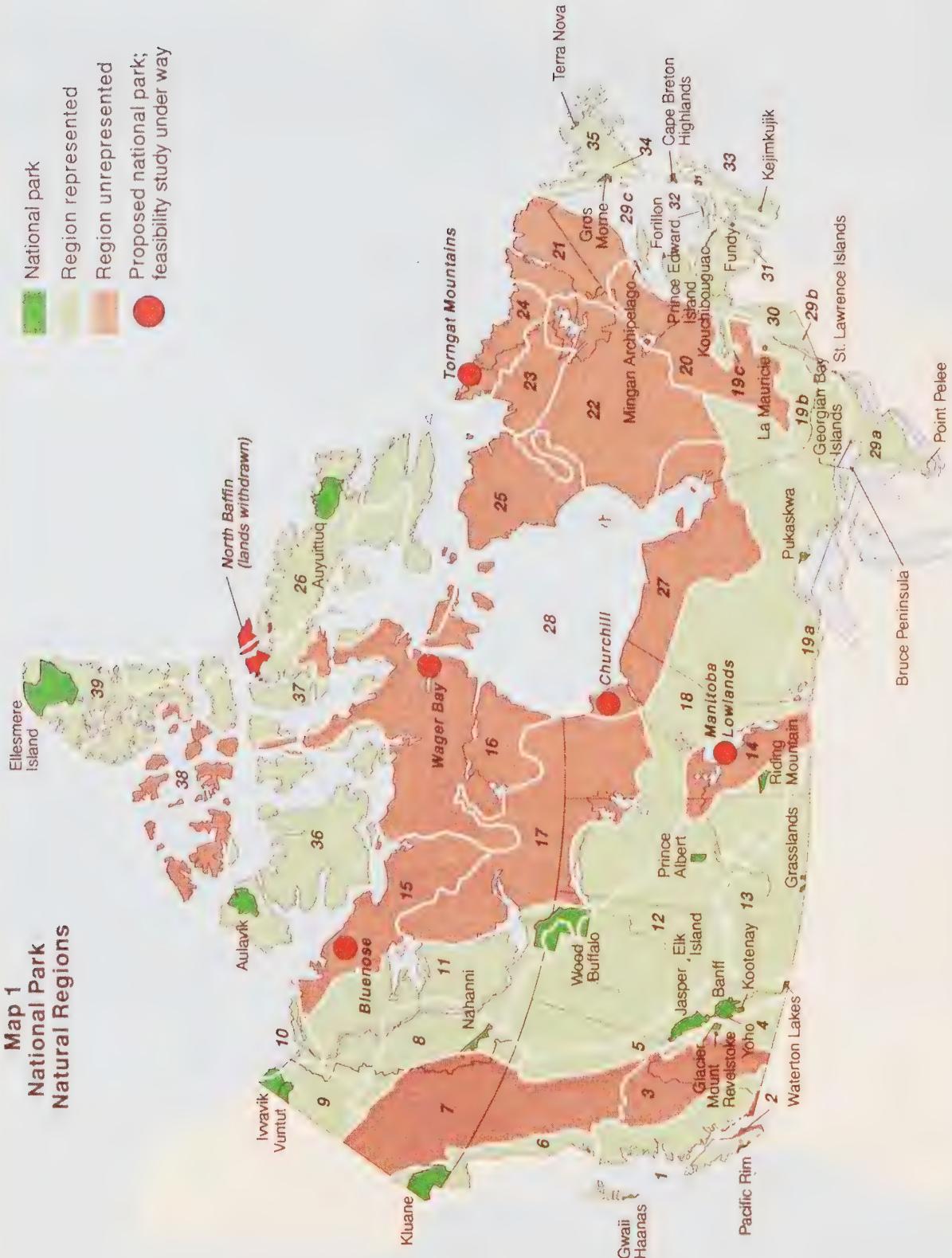
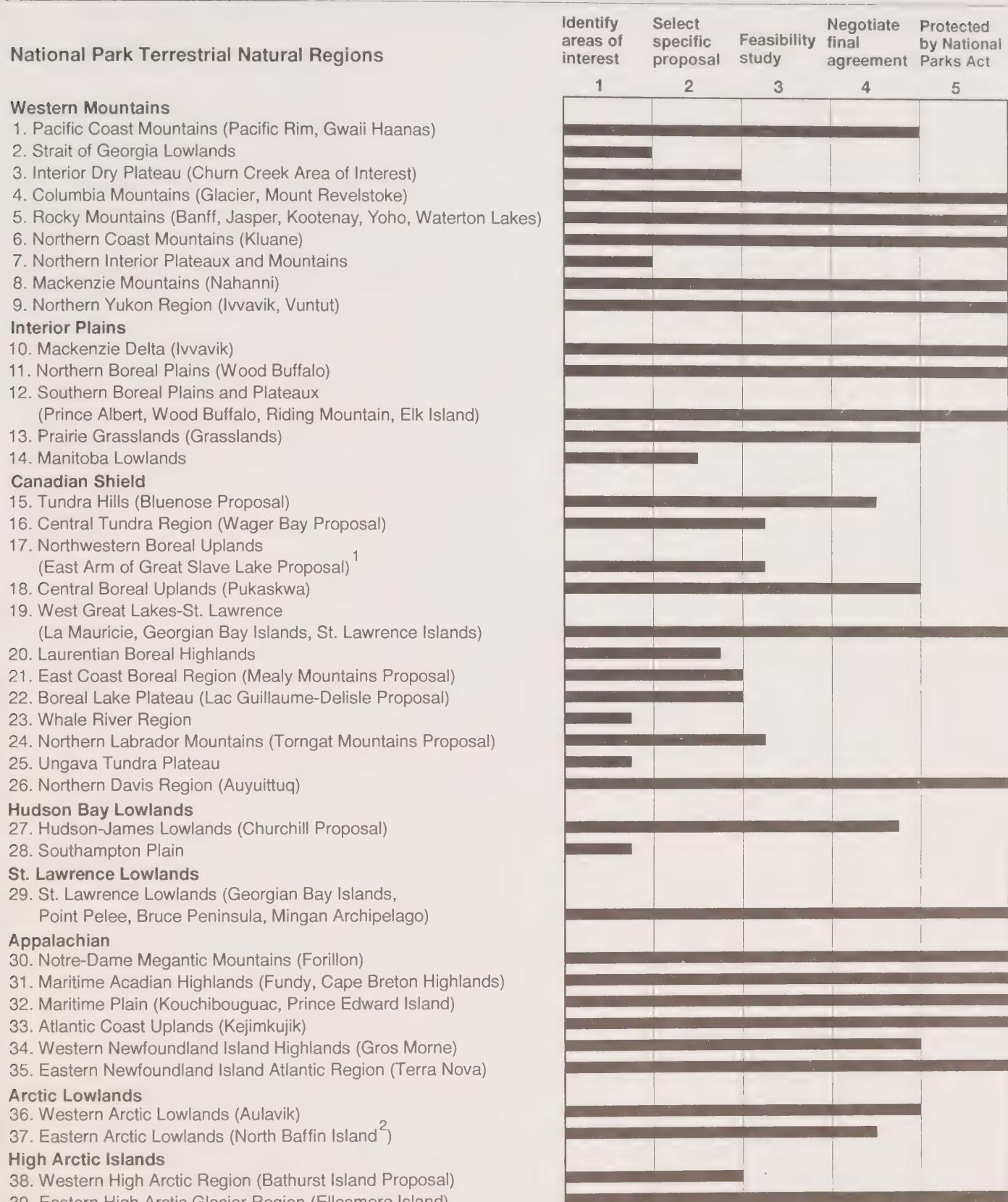


Figure 1: Completing the National Parks System



¹ Lands withdrawn, but further progress stalled.

² Lands withdrawn and final negotiations under way.

Table 1: Canada's National Parks and National Park Reserves

National park/reserve	Year of agreement	Year established	Park area (sq km)
1) Banff, Alta.	-	1885	6,641.0
2) Glacier, B.C.	-	1886	1,349.3
3) Yoho, B.C.	-	1886	1,313.1
4) Waterton Lakes, Alta.	-	1895	505.0
5) Jasper, Alta.	-	1907	10,878.0
6) Elk Island, Alta.	-	1913	194.0
7) Mount Revelstoke, B.C.	-	1914	259.7
8) St. Lawrence Islands, Ont.	-	1914	8.7
9) Point Pelee, Ont.	-	1918	15.0
10) Kootenay, B.C.	-	1920	1,406.4
11) Wood Buffalo, Alta., N.W.T.	-	1922	44,802.0
12) Prince Albert, Sask.	-	1927	3,874.3
13) Riding Mountain, Man.	-	1929	2,973.1
14) Georgian Bay Islands, Ont.	-	1929	25.6
15) Cape Breton Highlands, N.S.	-	1936	948.0
16) Prince Edward Island, P.E.I.	-	1937	21.5
17) Fundy, N.B.	-	1948	205.9
18) Terra Nova, Nfld.	-	1957	399.9
19) Kejimkujik, N.S.	1967	1974	403.7
20) Kouchibouguac, N.B.	1969	1979	239.2
21) * Pacific Rim, B.C. (R)	1970/87	-	285.8
22) Forillon, Que.	1970	1974	240.4
23) La Mauricie, Que.	1970	1977	536.1
24) Pukaskwa, Ont.	1971/78	-	1,877.8
25) Kluane, Yukon (R)	1972	1976	22,013.3
26) Nahanni, N.W.T. (R)	1972	1976	4,765.2
27) ** Auyuittuq, N.W.T. (R)	1972	1976	21,469.4
28) Gros Morne, Nfld.	1970/73/78/83	-	1,805.0
29) Grasslands, Sask.	1975/81/88	-	906.4
30) Mingan Archipelago, Que. (R)	-	1984	150.7
31) Ivavik (Northern Yukon), Yukon	1984	1984	10,168.4
32) Ellesmere Island, N.W.T. (R)	1986	1988	37,775.0
33) Bruce Peninsula, Ont.	1987	-	154.0
34) Gwaii Haanas (South Moresby), B.C. (R)	1987/88	-	1,495.0
35) Aulavik, N.W.T.	1992	-	12,200.0
36) Vuntut, Yukon	1993	-	4,345.0
*** North Baffin, N.W.T.	1992	-	22,252.0
Total			218,902.9

"Year of agreement" refers to year of memorandum of understanding, federal/provincial agreement or land withdrawal.

"Year established" refers to year park was formally created by Order-In-Council, proclamation, or enactment.

(R) National park reserve: A park reserve is an area set aside for the purpose of a national park, to which the National Parks Act applies, but the lands, fish and wildlife are subject to the future settlement of native land claims.

* Park area measurement includes land component only.

** Auyuittuq's size will be about 2,000 km² less than what is listed here once pending land claims legislation is promulgated.

*** Land withdrawal for future national park. Negotiations are ongoing.

NEW NATIONAL PARKS — HIGHLIGHTS

Churchill (Manitoba)

Negotiations have progressed well in the working group representing Parks Canada, Manitoba, Churchill, and local Native bands. Most major issues have been resolved, and negotiation of a federal-provincial park establishment agreement is nearing completion.

Manitoba Lowlands (Manitoba)

A federal-provincial study has been launched to select a national park proposal from among three potential areas. Results are expected in summer 1995.

Tuktut Nogait/Bluenose (Northwest Territories)

A major portion of this proposal, encompassing the Hornaday River and Melville Hills, is under active negotiation with the Inuvialuit, Government of Northwest Territories, and local community of Paulatuk. Technical studies assessing mineral, energy, and hydroelectric power potential have been completed. The rest of the proposal falls within two other land claim settlement areas: the Nunavut and Sahtu. Consultations on the Nunavut component will start this year.

North Baffin Island (Northwest Territories)

Settlement legislation for Nunavut, which came into force in July 1993, sets out a time frame for establishing three national parks in the Eastern Arctic — including the north Baffin proposal, for which the lands were withdrawn in 1992 as a form of interim protection. Inuit Impact and Benefit Agreements (IIBAs) are to be negotiated for Auyuittuq and Ellesmere Island National Park Reserves by July 1995 and for northern Baffin Island by July 1996. The IIBA for the northern Baffin Island park proposal will also serve as a final park agreement. Negotiations are expected to begin in fall 1994, at a pace set by the local communities.

Wager Bay (Northwest Territories)

Also within the Nunavut Region, the Wager Bay area is being assessed for its feasibility as a national park. Resource studies including archaeological, biophysical, mineral, and hydrological assessments have been undertaken over the past three years, and boundary options are being considered. Parks Canada is seeking agreement from the Keewatin Inuit Association to begin local community consultations on this proposal.

Western High Arctic (Northwest Territories)

In the Western High Arctic, studies to identify a potential park area have been completed. A portion of northern Bathurst Island, adjacent to Polar Bear Pass National Wildlife Area, is the preferred choice. The next step is to consult with local residents concerning initiation of a feasibility study.

Torngat Mountains (Labrador)

A feasibility assessment is proceeding well. Background research studies under way include fauna and archaeological research, as well as ecological land classification. Working group partners are the Government of Newfoundland and Labrador, Parks Canada, and the Labrador Inuit Association.

Mealy Mountains (Labrador)

Discussion of a park proposal in the Mealy Mountains area has been under way for some time. Efforts are continuing to formally initiate a feasibility assessment with the Government of Newfoundland and Labrador, Parks Canada, and the Innu Nation.

Churn Creek (British Columbia)

An area of interest identified by Parks Canada to represent the Interior Dry Plateau natural region is being considered within British Columbia's regional land-use planning process.

Hautes Gorges and Lac Guillaume-Delisle (Quebec)

A Quebec-Parks Canada working group has been meeting to consider ways of collaborating in establishing new parks in Quebec, including the Hautes Gorges and Lac Guillaume-Delisle areas.

East Arm of Great Slave Lake (Northwest Territories)

Work on this long-standing park proposal has been stalled since the Dene-Metis land claim negotiations collapsed in 1990. The Native people who would be most affected by park establishment will likely address the park proposal only in the context of a land claim or treaty settlement. Currently the local Dene Band is beginning negotiations for their entitlement under Treaty 8. In the meantime the lands continue to be protected by a land withdrawal that dates back to 1970.

NATIONAL MARINE CONSERVATION AREAS

National marine conservation areas (NMCA), formerly known as national marine parks, protect a variety of marine ecosystems, critical marine wildlife habitats, and submerged cultural resources such as shipwrecks. These areas promote conservation and sustainable use of the natural marine environment. The name change from "marine park" to "marine conservation area" is intended to reflect more accurately these objectives.

The new policy on national marine conservation areas, part of Parks Canada's new Guiding Principles

and Operational Policies, incorporates the knowledge and insights gained about marine area management since the first national marine parks policy was approved in 1986.

The national marine conservation areas system is in its infancy. Currently 5 of Canada's 29 marine regions have representation (Map 2).

The federal government intends to establish a national marine conservation area in each of the marine regions over the long term. Twenty-four gaps remain to be filled — four of them by the year 2000. A draft NMCA system plan and action plan are currently in preparation.

Map 2 Marine Conservation Areas Current Representation

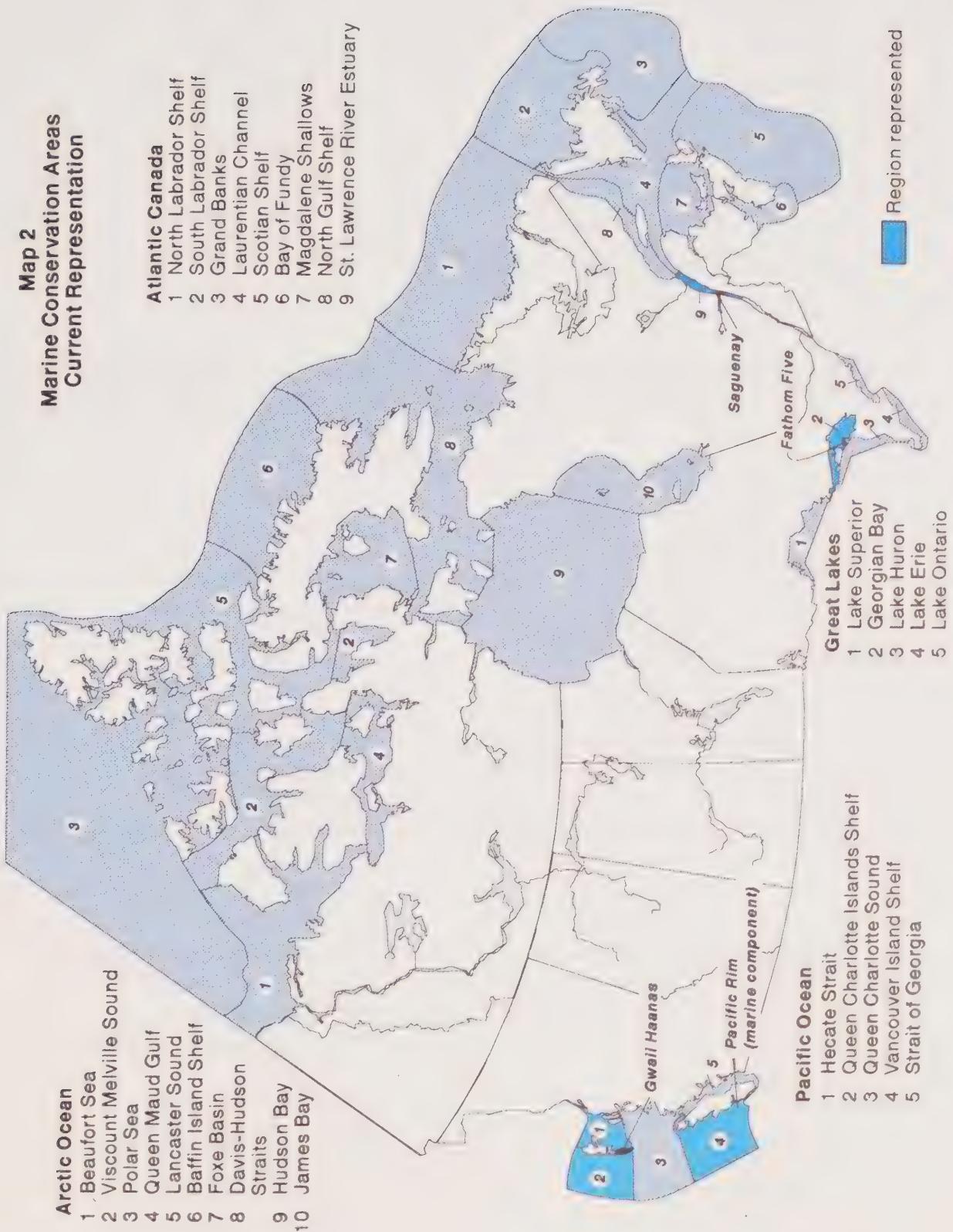


Table 2: Marine Areas

		Year of agreement	Year established	Park area (sq km)
1)	Fathom Five, Ont.	1987		113.0
2)	Gwaii Haanas Archipelago (R),* B.C.	1988		3050.0
3)	Saguenay Marine Park, Que.	1990		1138.0
4)	Pacific Rim National Park (R) Marine Component, B.C.	1987		213.9
Total				4514.9

* Approximate measurement; overlaps and represents two marine regions.

NEW NATIONAL MARINE CONSERVATION AREAS — HIGHLIGHTS

Gwaii Haanas/South Moresby (British Columbia)

In fall 1993, federal and provincial ministers agreed on the boundaries of this marine conservation area. Work is under way to obtain clear title and to prepare for negotiating a Canada-Haida agreement on management. The Hecate Strait and Queen Charlotte Islands Shelf marine natural regions are represented by the new marine conservation area, but considerable work is still required to put a marine conservation area program in place.

West Isles (New Brunswick)

Canada and New Brunswick are discussing whether to resume public consultations on the West Isles proposal. Consultations would be led by the community and guided by the new NMCA policy. "Value added" conservation is a main objective, while boundaries and the growing aquaculture industry are the main issues.

Saguenay (Quebec)

The provincial and federal governments agreed on park boundaries early in 1993, and a park management plan is nearly completed. Complementary federal and provincial legislation is being prepared to formally establish the area.

NEW POLICIES FOR PARKS, MARINE AREAS, AND HERITAGE RIVERS

From 1991 to 1994 the Parks Canada policies were publicly reviewed and revised. Much of the focus of public interest was on the national parks portion of the policies. The policies were tabled in Parliament in March 1994, clarifying Parks Canada's mandate for the management of national parks, national marine conservation areas, and heritage rivers.

POLICY OVERVIEW AND GUIDING PRINCIPLES

This section of the new policies sets the context for all Parks Canada program elements and provides a foundation of ten guiding principles.

NATIONAL PARKS POLICY

The 1994 policy now gives greater emphasis to protecting ecological integrity and park ecosystems. Working co-operatively with others responsible for adjacent areas is strongly advocated in the policy to promote a "greater ecosystem approach" to management. It is recognized that national parks cannot be managed as "islands" of nature in isolation from surrounding regions.

The policy recognizes the legal priority given to maintaining ecological integrity. It also specifies the need for developing and maintaining integrated data bases and for monitoring programs.

NATIONAL MARINE CONSERVATION AREAS (NMCA) POLICY

This policy's new name (it was formerly the "National Marine Parks Policy") is better suited.

NMCAs have a three-class, flexible zoning system. The zones include two protected core segments (Zone I and Zone II) and a multiple-use conservation segment (Zone III) where commercial fishing is permitted.

The revised NMCA policy recognizes that the open, dynamic nature of marine ecosystems makes planning and managing them significantly different from planning and managing terrestrial environments. The new policy anticipates the need to develop new legislation for marine conservation areas.

CANADIAN HERITAGE RIVERS POLICY

This policy provides guidance for Parks Canada's involvement in the co-operative Canadian Heritage Rivers System related to:

- co-ordination and assistance,
- participation in nominating, designating, and managing rivers under Parks Canada authority,
- provision of a secretariat, and
- public promotion of the system.

CULTURAL RESOURCE MANAGEMENT

This new policy applies to national parks, national marine conservation areas, and Canadian heritage rivers administered by Park Canada, as well as to other program elements. The policy is described on page 58.

METHODOLOGY FOR ASSESSING ECOLOGICAL INTEGRITY

ECOLOGICAL INTEGRITY

Ecological integrity is the most important concept in considering the state of national parks and reserves, and national marine conservation areas. It is a concept that is receiving considerable study in the scientific community. For this report, ecological integrity is defined as **the condition of an ecosystem where 1) the structure and function of the system are unimpaired by stresses induced by human activity, and 2) the system retains resilience in that its biological diversity and supporting processes are likely to persist.**

Within the framework of the National Parks Act and Parks Canada's Guiding Principles and Operational Policies, each national park has its own purpose and objectives statement that reflects the role of the park in the system. Any measures of ecological integrity must be based upon the condition of ecosystems represented within parks, in relation to their purpose and objectives.

The National Parks Act as amended in 1988 states: "Maintenance of ecological integrity through the protection of natural resources shall be the first priority when considering park zoning and visitor use in a management plan." Therefore, the implications for ecological integrity must be the most important concern of park management when

decisions are made that translate the purpose and objectives for each national park into a management plan, which is then geographically expressed through zoning.

Ecological integrity is more than an ecosystem-science concept. The assessment of ecological integrity is based in ecosystem science, in that ecosystem elements and processes can be measured, and predictions made on cause and effect relationships. However, the evaluation of this scientific data to determine ecological integrity must be done against established norms. Thus, societal values come into play in establishing the norms or yardsticks used in assessment.

The establishment of norms to assess ecological integrity is a difficult question for state-of-the-parks reporting. *The main issues* centre around choosing the appropriate spatial and temporal scales against which to assess ecological integrity.

Spatial scale —

Small national parks in southern Canada will likely have lost species and have impaired ecological processes. The main reason for such changes are because southern parks are generally surrounded by intensive development, such as agriculture and urbanization. In addition, these smaller parks will protect smaller populations, and smaller populations are more susceptible to extinction.

ELK ISLAND NATIONAL PARK ECOSYSTEM MANAGEMENT MODEL (EMM)

The Ecosystem Management Model (EMM) project has been initiated by Parks Canada to design and develop an ecosystem simulation modelling environment that is totally integrated with geographic information system (GIS) technology for Elk Island National Park. The EMM is intended as both an interactive planning tool for assessing the feasibility of alternative resource management objectives, and a technical tool for predicting ecosystem response to management interventions in order to determine the actions most appropriate for meeting Parks Canada policy at EINP. The project has been undertaken in combination with private industry, academic institutions and Parks Canada.

What is the norm or yardstick that should be used to measure the state of ecological integrity of small parks? Can the same yardstick be used to measure the ecological integrity of larger northern parks?

A further complication in the question of spatial scale is choosing the actual area to use when reporting on ecological integrity. Park boundaries are seldom ecological boundaries. Parks are ecologically connected to their surrounding regions and beyond. Rivers, wildlife, and pollutants all easily flow across park boundaries. Viable populations of many species of wildlife inhabit regional areas that are much larger than park boundaries.

Given these considerations, what spatial scale should be used to report on ecological integrity? Should it be the larger region of which the park is part, the area within the park boundary, or even a smaller area such as Zone II wilderness areas?

Temporal scale —

Similar questions exist when considering temporal scales. Many areas of Canada had lost some degree of ecological integrity prior to being established as parks. For example, in eastern Canada, several species of mammals became extinct in the early 1900s, before any national parks were established. To complicate the issue, there have been many developments in older parks that were created decades ago, under different management philosophies and policies, such as dams, fish hatcheries, and national transportation corridors.

What baseline should be used in these cases? Should an assessment of ecological integrity measure change from before the park was established, the date of park establishment, or some later date?

Conclusions —

For state-of-the-parks reporting it is most appropriate to use similar norms or yardsticks for *all* parks. National parks are designated to have the highest form of environmental protection, and their assessment should reflect that goal. Parks have a mandate to be representative examples of Canada's natural regions. This implies that all native biodiversity is present at viable population levels, and

ecological processes are present to support those populations.

The use of an ecological integrity yardstick that measures the park against a totally unimpaired state is seen as the only appropriate option. National parks are embedded in larger regional and interregional ecosystems. The assessment of ecological integrity in a park must account for that connectedness and the overall legal and societal goal to protect parks as pristine areas. Thus the assessment of ecological integrity must take place at temporal scales that are often longer than the age of the park and at spatial scales that are often larger than the park.

The choice of large spatial and long temporal scales for reporting ecological integrity has many implications. It emphasizes the actual state of the ecosystem and not necessarily the effectiveness of park management to protect that ecosystem. In many cases the state of park ecosystems is a reflection of decades or even centuries of past land use. It is also a reflection of the state of the larger natural region in which the park is located. Current park management practices often have little to do with declines in the state of ecological integrity.

The use of large scales for reporting also means that small southern parks will generally be assessed as having decreased ecological integrity. Such an assessment will point out the need to consider more active management interventions, such as ecosystem restoration, co-operative regional approaches, the removal of old dams, or species reintroduction. As such, ecological integrity assessment is a management tool. It measures parks against a pristine state, realizing that a return to that state may not always be achievable or practicable. However, the ongoing use of ecological integrity assessments provides a measurable scale of change and points the way for management action.

FRAMEWORK FOR ECOLOGICAL INTEGRITY

The relative integrity of the ecosystems in and around parks and reserves is a function of a number of factors including:

- park area,
- park infrastructure, and

- regional land use.

The framework and process for assessing ecological integrity — including state of ecosystem monitoring and action to maintain and restore ecological integrity — are being refined. Test studies are being carried out in the following national parks: Fundy, Banff, Jasper, Elk Island, Prince Albert, Point Pelee, and La Mauricie.

THE CASE OF FUNDY NATIONAL PARK

New Brunswick's Fundy National Park was the first park to undergo a comprehensive ecological integrity assessment. Other parks are using the Fundy project as a basis for conducting their own assessments and refining their techniques. This is the Fundy story.

The measures

As the Fundy project developed, it was decided that an ecological integrity assessment must take into account the following principles:

- ecosystems interact at various organizational levels (individual, community, landscape),
- ecosystems have various structures (e.g. species diversity),

- ecosystems have various functions (e.g. cycling nutrients),
- parks are ecologically connected to surrounding regions and beyond (how large an area should be studied?), and
- ecosystems are constantly changing, both in the short and long term.

The Fundy National Park case study was conducted on the park plus the surrounding region: the so-called Greater Fundy study area, five times the size of the national park. Fundy National Park is 46 years old, but the study went beyond that to use all available historical information. Many of the ecological problems reported, in fact, occurred on a scale much larger than park boundaries and prior to park establishment.

Data were collected on the suite of indicators listed below:

- human disturbance,
- species richness,
- rate of succession,
- ability to retain nutrients,
- average body size of organisms,
- reproductive rates of indicator species,
- population viability of native species, and
- landscape fragmentation.

Disturbance category	% of area external to Fundy National Park	% of area within Fundy National Park	% of total Greater Fundy study area
Relatively undisturbed	62.9	86.6	67.5
Recent forestry: clearcut/ plantation	22.0	0.0	17.8
Forestry roads – 50-m buffer	5.1	0.0	4.1
Abandoned fields	1.4	0.6	1.2
Agriculture and settlement	3.1	0.0	2.5
Park facilities/developments	0.0	0.6	0.1
Main roads – 100-m buffer	5.5	9.1	6.2
Hiking trails – 20-m buffer	0.0	3.1	0.6
Total area disturbed	37.1	13.4	32.5

These indicators were carefully chosen to understand the state of the ecosystem, including its structure, function, and dynamics.

Results

Human disturbance

Human disturbance affects 32.5% of the total study area. Within the national park portion of the study area, human disturbance is caused mainly by a network of public roads and hiking trails, and by park facilities and developments such as campgrounds and a golf course. Outside the park, disturbance is almost three times as intense. Forestry, with its clearcuts, plantations, and roads, is the main cause.

Species richness

Systems under stress tend to lose native species and become invaded by non-native species (it is important to differentiate between them). Here is a sampling of what has happened in the Fundy ecosystem:

Taxonomic group	Historical native species	Present native species	% native species loss	Present non-native species	Present % non-native species
Mammals	40	34	15.0	3	8.1
Vascular plants	414	412	0.5	119	22.3
Herpetofauna	18	18	0.0	0	0.0
Breeding birds	95	93	2.1	2	2.1
Totals	567	557	1.8	124	18.2

Rate of succession

It has been demonstrated in many studies that ecosystems under stress revert to an earlier stage of succession. Historically, the major dynamic element in the Fundy study area has not been fire or flooding, but outbreaks of spruce budworm (*Choristoneura fumiferana*). The forest structure of the Acadian forest in New Brunswick is largely dominated by outbreaks of this insect.

Epidemics of spruce budworm are very large-scale phenomena and thus difficult to measure. However, in the Fundy National Park region, epidemics appear to be increasing in both intensity and frequency. Comparing the 19th and 20th

centuries for all of eastern Canada, it appears the number of regional-scale budworm outbreaks doubled from 10 to 21. The maximum areas defoliated in eastern Canada increased from 100,000 km² in 1910 to 2,500,000 km² in the 1940s and 10,000,000 km² in the 1970s. The interval between budworm outbreaks has decreased from a range of 42–75 years in the 19th century to 19–34 years in the 20th century. In New Brunswick, spruce budworm populations became epidemic in 1949 and again in 1968, an interval of only 19 years.

On the basis of the observed patterns, it seems unlikely that the current spruce-fir forests of Fundy will get older than two budworm cycles, or 38 to 68 years of age. This is in contrast to the historic spruce-fir forest, where the maximum age would be at least 84–150 years. These changes in the frequency and intensity of budworm outbreaks will move the ecosystem to a younger successional status and have a dramatic impact on species requiring old-growth coniferous forests for their survival.

Ability to retain nutrients

One of the strongest measures of the state of an ecosystem is its ability to retain certain nutrients, especially calcium and nitrogen. In the Fundy study area, the 1972–1988 calcium export trends in the Point Wolfe River watershed were examined. Half this watershed is outside Fundy National Park, where 25% of the basin was harvested by intensive clear cutting from 1977 to 1987.

Results show that during this time significantly more calcium was exported, meaning a decrease in the ability to retain nutrients. The problem may be corrected as the forest regenerates, but the results are a cause of concern for the site's long-term integrity.

Average body size of organisms

Stressed ecosystems tend to lose large-bodied species and thus the combined average body weight of all species decreases. Between 1840 and the present, the combined average body weight of all native mammal species in the Fundy area declined by an average 13.9%. This decline corresponds to a period of intensive land use, including forestry, agriculture, hunting, and trapping.

Reproduction of an indicator species

Reproduction rates in a particular species should be considered a sentinel, or early warning, measure of ecosystem integrity. The sharp-shinned hawk was the indicator species used in the Fundy study. This bird's preferred habitat in the Fundy area is closed-canopy spruce forests, a habitat being intensively harvested. But results show sharp-shinned hawks reproducing very successfully.

This particular result points out the value of using a suite of integrity measures. Not all measures will point to the same conclusion. A comprehensive approach is required to get the full picture.

Population viability of native species

The ecological integrity of a protected area depends on its ability to protect viable populations of native species. The pine marten was used as an indicator species for the Fundy case study because it is a carnivore with a wide home range and low reproductive potential.

The results show that Fundy National Park, by itself, is too small to protect a viable population of pine marten, but that the larger study area could.

This means the park will need to work with adjacent land managers to ensure the ecological values of the area are protected. If, however, the forest continues to be fragmented under current land management practices, it is highly unlikely the pine marten population will survive.

Landscape fragmentation

The fragmentation of a landscape into small patches is a great threat to biodiversity. Fragmentation isolates populations, increasing the chances of local extinction of populations.

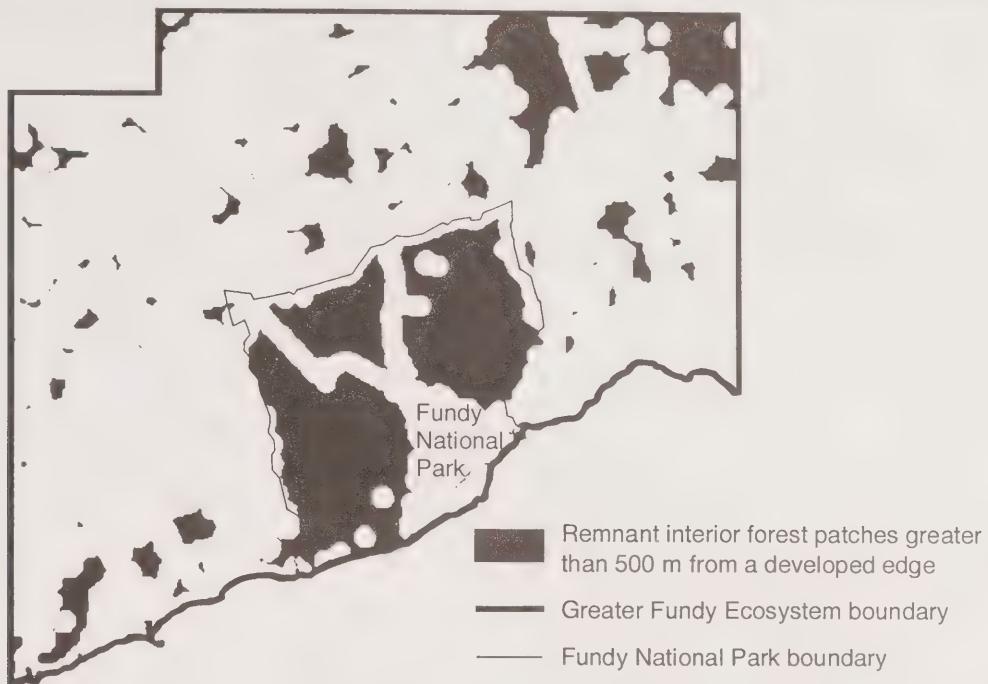
Fragmentation was measured by using a geographic information system to isolate all patches of relatively undisturbed forest. The resulting map is shown opposite (Map 3).

Of the entire Greater Fundy study area, only 20.5% remains in the forest interior class 1, which is greater than 500 m from a developed edge. The value rises to 35.4% for forest interior class 2, which begins at 250 m from a developed edge, and 50.1% if the forest interior class is considered to begin at 100 m. The question of how to define forest interior varies with species and different environmental variables. No matter which forest interior class is selected, it is clear that the system is highly fragmented and forest interior habitat is greatly diminished because of human development.

The Greater Fundy study area is highly fragmented by human development, with the majority of the fragmentation outside the park border. The remaining forest interior patches are small and only five large patches of greater than 10 km² are left on the landscape. Patch size has been shown to be an important predictor of many species' presence.

Ecological integrity measure	Reference value	Score	Absolute difference
Succession/regression	1.00	0.45	0.55
Species richness of native mammals	1.00	0.76	0.24
Invasion of non-native flora	1.00	1.29	0.29
Loss in average body size	1.00	0.84	0.16
Reproduction — sharp-shinned hawks	1.00	1.00	0.00
Ability to retain calcium	1.00	1.07	0.07
Landscape fragmentation	1.00	3.07	2.07
Viability of populations — pine marten	1.00	0.49	0.51

Map 3
Forest Fragmentation in Greater Fundy Ecosystem



For further information on the chosen indicators, see the reference cited on p. 30.

Conclusions

The ecological integrity scores for each of the measures are summarized in the preceding table. The **reference values** represent the selected goal for each of the measures, with a score of 1.00 meaning the ecological integrity measure meets its defined target. Any **deviations** in the score, either above or below 1.00, represent a loss of ecological integrity. In the species richness measure, for example, the **reference value** of 1.00 indicates that all native mammals are present. The **actual score** of 0.76 represents the loss of eight species of native mammals.

The most substantial deviation from the reference level occurs in the landscape fragmentation measure. Two other measures show large deviations: rate of succession and population viability. Such significant deviations from reference levels point to a significant loss of ecological integrity in the Fundy study area — caused mainly by use of the landscape

for forestry, recreation, development, and agriculture.

Significant native species have been lost, and many exotic species have invaded the area. With the landscape highly fragmented and evidence of a decline in ecosystem function, it is highly likely that more species will be lost.

Implications for park management

Because the Fundy study went so far back in time and covered such a wide area, the problems do not reflect on any particular management regime. Yet the results do have implications for Fundy National Park management.

Parks Canada has responded by establishing the Greater Fundy Ecosystem Project in the area. This project is designed to integrate the park into its surrounding landscape so that the entire system is both ecologically and economically sustainable.

The Greater Fundy Ecosystem Project was instrumental in developing the Fundy Model Forest. With the active co-operation of landowners and

forest management companies, this project is experimenting with new forest harvesting techniques and planning methods to ensure that forest use and environmental protection are compatible. Fundy is

only one of many national parks that have entered into this new approach to ecosystem management — one that is based on a sound understanding of the ecosystem and co-operation with interested partners.*

THE STATE OF EXISTING NATIONAL PARKS

It is a challenge to report comprehensively on the state of ecosystems for a system as large and diverse as Canada's national parks. These parks range from small remnant areas set in a human-dominant environment (e.g. Point Pelee National Park in southern Ontario) to vast wilderness areas surrounded by similar wilderness (e.g. Auyuittuq National Park Reserve on Baffin Island). The parks range in age from newly established to 109 years.

THE ECOLOGICAL VALUE OF NATIONAL PARKS

Since national parks and reserves represent, to some degree, 14 of 15 Canadian ecozones (Map 4), they are among Canada's most important and valued ecological assets. The scientific and ecological importance of this highly protected network of relatively pristine natural areas is widely recognized and appreciated both at home and abroad.

The ecological contribution of national parks is highlighted by the fact that over 97% of the park lands are dedicated to wilderness and special preservation.

Zone I	special preservation	3.25%
Zone II	wilderness	94.01%
Zone III	natural environment	2.16%
Zone IV	outdoor recreation	.48%
Zone V	park services	.09%

Because of the different sizes, stages of development, and management issues, the type and amount of ecological information available for each park is different. It is not, therefore, easy to summarize information and make general statements about the state of the national parks.

ECOLOGICAL CONDITIONS

Physical elements and processes

In the national parks and reserves, the physical ecological elements and processes — geological, geomorphological, hydrological, and climatological systems — are generally intact and functional.

There are exceptions, for example:

- the 1968 Bennett Dam on the Peace River, upstream from Wood Buffalo National Park;
- recent manipulation of the water levels and flow of the Frenchman River, upstream from Grasslands National Park;
- the decades-old hydroelectric dam at Lake Minnewanka in Banff National Park; and
- dozens of smaller structures in a number of parks.

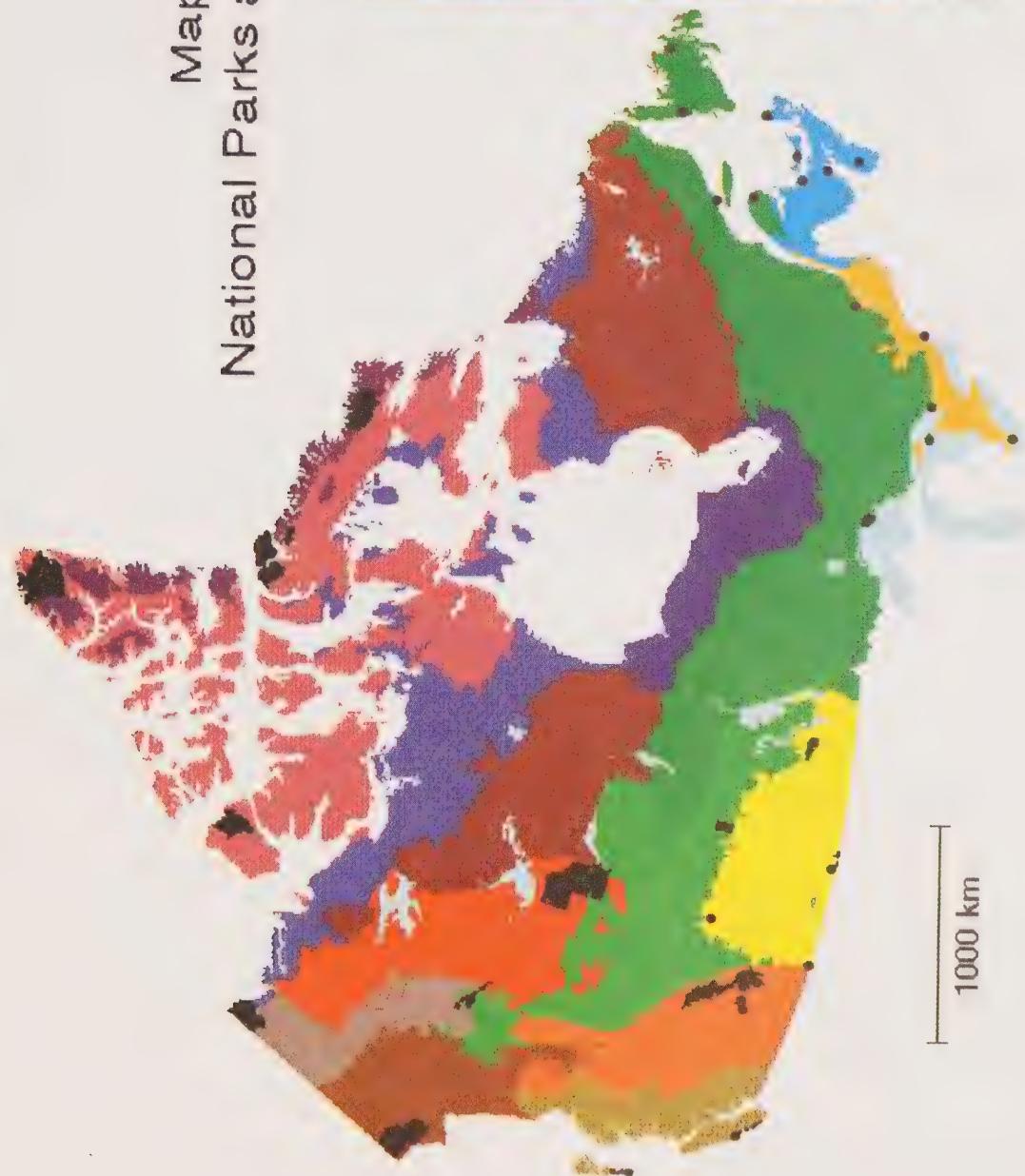
Some of the dams (e.g. those built for logging before Pukaskwa National Park was established) are being left to deteriorate, with the result that natural levels and flows should eventually be restored.

Trails, roads, campgrounds, and borrow pits have caused minor disturbances to soils and streams in a number of parks. In some of the older prairie and western national parks, community, railway, and highway developments early in the history of the parks created more extensive disturbances.

Several parks in Eastern Canada (e.g. Pukaskwa, La Mauricie, and Fundy) suffer from acid precipitation or acid fog. While national parks and reserves generally do not themselves cause significant air and

* Source: Woodley, S.J. "Assessing and monitoring ecological integrity in parks and protected areas." PhD thesis. Waterloo, Ontario: University of Waterloo, Faculty of Environmental Studies, 1993.

Map 4 National Parks and Ecozones



AUYUITTUQ NATIONAL PARK RESERVE CO-OPERATIVE POLAR BEAR STUDY

Polar bears inhabit Auyittuq National Park Reserve during late summer and early fall, when the sea ice has melted. They also are known to den within the park. However, the bears normally range far beyond the park boundaries, even as far as Greenland.

Because there were major gaps of knowledge regarding this far-ranging, vulnerable species, a co-operative research project was initiated involving Parks Canada, the Government of the Northwest Territories, and the University of Saskatchewan in 1991. The purpose of the study was to document bear movement in and around the park including throughout the Baffin Bay–Davis Strait region. To date, 19 satellite collars have been placed on adult female bears throughout South Baffin.

The study hopes to:

- document polar bear distribution in and around the park during the ice-free period, August–November;
- assess the overall range distribution of bears using the park during part of their annual cycle;
- determine the extent to which polar bears show site fidelity to the park during part of their annual movements; and
- identify areas suitable for denning.

Source: "Surface-Use Patterns and Distribution of Polar Bears in and Around Auyittuq National Park, Northwest Territories", (Preliminary Report, 1991-93) by F. Messier, M.K.Taylor, & S. Ferguson, University of Saskatchewan and Government of Northwest Territories. March 1994.

water pollution, these stresses, and other global phenomena such as climate change, do not respect park boundaries.

Biological elements

Most species historically observed in national parks still exist, but there have been many local and regional extinctions.

Inventories, studies, and other research have tended to focus on larger species — particularly mammals, birds, fish, and trees. This research has confirmed that larger species are likely to disappear from southern areas where land is heavily used and where ecosystems have been significantly altered.

For example:

- an inventory of amphibian and reptile species conducted in Point Pelee National Park in the 1970s found that $\frac{1}{3}$ of the species present earlier

in the century were no longer there; subsequent monitoring has confirmed this loss;

- more recent surveys of lesser-known species (e.g. mosses, lichens, and liverworts) of the national parks and reserves in Atlantic Canada and Quebec have revealed a previously unknown species richness.

National parks and reserves are home to many rare, threatened, or endangered species, as well as many habitats similarly at risk. For example:

- the whooping crane in Wood Buffalo National Park,
- the white pelican in Prince Albert National Park,
- mixed-grass prairie in Grasslands National Park,
- Carolinian forest in Point Pelee National Park, and
- 15 mammal species rare within Cape Breton Highlands National Park.

Most national parks and reserves have been invaded by exotic species, but the major impacts tend

SOME EXAMPLES OF CHANGES REPORTED SINCE 1990

Fundy National Park

- peregrine falcon and pine marten successfully reintroduced — ongoing monitoring will confirm long-term success
- former agricultural research site requires further investigation for soil contamination

Wood Buffalo National Park

- whooping crane population has increased from 29 nesting pairs to 140 birds

Yoho National Park

- native cutthroat trout and grizzly bear populations threatened

Terra Nova National Park

- commercial development on lands next to park boundaries threatens to increase monitoring and enforcement requirements where none took place previously
- adjacent provincial landfill site impacting directly on park's black bear population

Kouchibouguac National Park

- forest clear cutting occurring next to park's western boundary
- peat-moss harvesting taking place next to northern boundary

Prince Edward Island National Park

- threat of oil pollution from offshore sunken oil barge

Banff National Park

- Bow Valley study initiated to address continuing conflict between pressures to develop montane valley bottomlands and to protect wildlife habitat and corridors

Kootenay National Park

- development (mining, hunting, recreation, forestry) on the park boundary
- threats to grizzly bear population requires co-operative management with outside agencies

to occur on disturbed sites and areas. The smaller southern parks, which have become ecological islands in a sea of change, are most heavily invaded, as well as parks on continental shelf islands where introduced species may not have any natural controls.

THE 1992 STRESS SURVEY

To provide a comprehensive view of the state of ecosystems, a questionnaire was sent to 34 national parks in 1992. This survey will be repeated in the future to identify developing trends.

The questionnaire was designed to assess the state of ecosystems based on a "stress-response" framework, using 29 identified stressors. The questionnaire was completed on a consensus basis by a team of three to five knowledgeable people. The teams included park staff, academics, naturalists, and specialists from outside agencies. There may be some variation in questionnaire results because the teams had different data available or different levels of knowledge of the regions.

Since park ecosystems often extend beyond park boundaries, **the teams had to answer questions on the basis of the larger regional ecosystem of which the park was a part.**

A national summary of the questionnaire results is presented in Figure 2. This represents a consistent national reporting based on the best available information. It is not an indication that one kind of stress is necessarily more significant than another. The summary simply indicates the number of parks that recorded a given stress as being significant. A park-by-park summary is presented in Figure 3.

For purposes of this report, a stress was considered to have a "significant impact" if:

- 1) it was having a definite ecological impact,
- 2) it was having an impact upon an area greater than a local scale (1 km^2), and
- 3) the trend in the intensity of the stress was either increasing or stable.

Twenty-two of 34 parks reported that visitor/tourism facilities (both within and outside the parks) were causing a significant ecological impact. These facilities included roads, accommodation, golf courses, ski hills, and swimming pools, among

others. In many of the earlier parks such facilities are a legacy from the past, reflective of park history.

Decisions regarding new infrastructure development within parks are now made as a result of the public Management Planning Process, and the Environmental Assessment and Review Process. This tends to constrain disruptive developments within parks and mitigate adverse ecological impacts. (See Appendices B and C). The need for new facilities is always balanced against the requirement to consider ecological integrity principles, including facility location where impacts will be minimized.

This tight restriction on new developments within national parks is supported by public opinion. A 1993 Angus Reid survey indicated:

- 92% of Canadians felt that visitor access should be limited where necessary to protect the environment;
- 88% of Canadians thought that development which threatens natural resources in the parks should be limited.

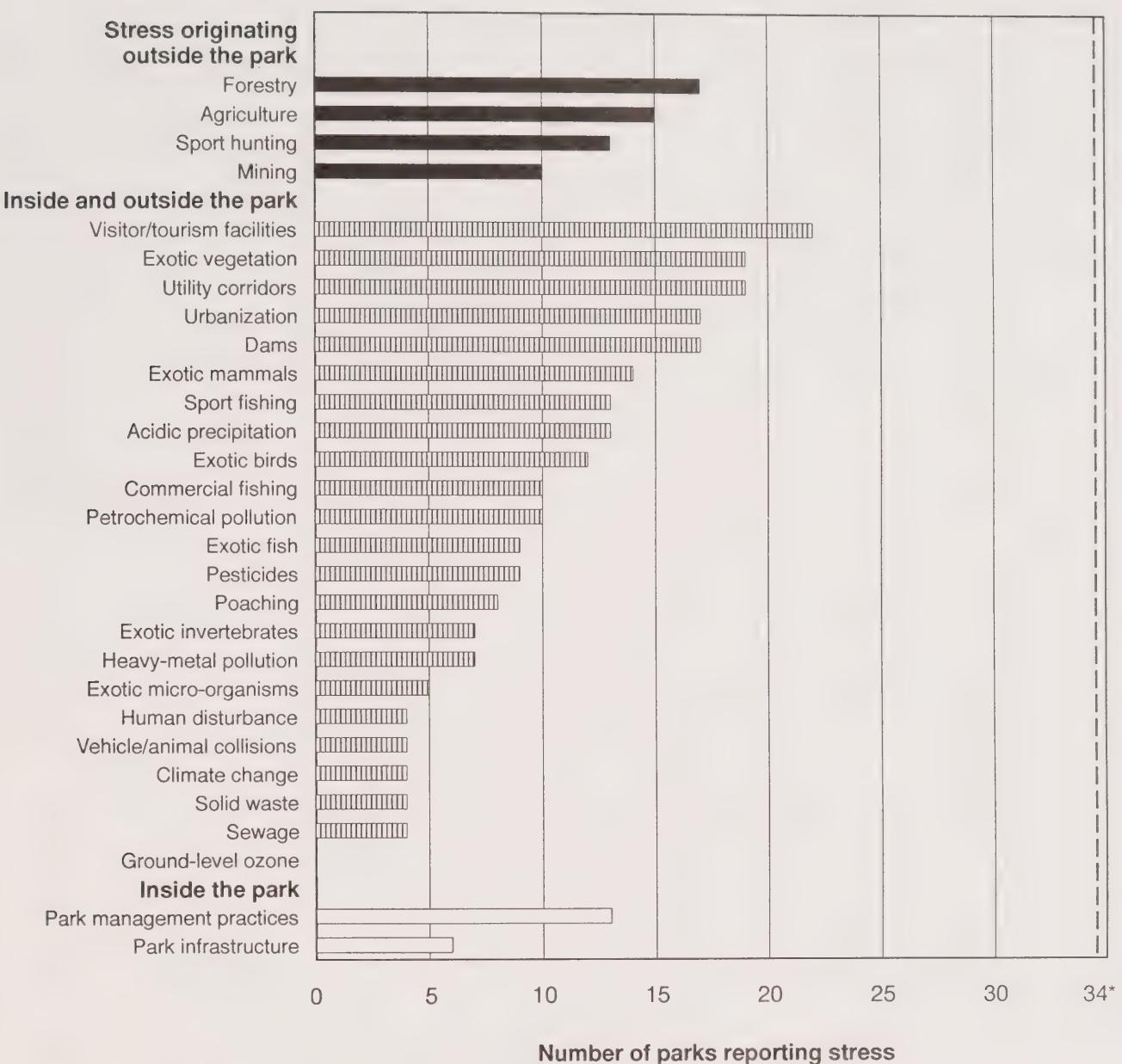
While park management will continue making efforts to mitigate and reduce undesired human-caused impacts on park ecosystems, it will not attempt to, nor be able to, eliminate *all* impacts. Many stresses originate outside park boundaries. Also, necessary facilities for park visitors invariably cause some stresses that cannot be eliminated.

The second most commonly reported stress was from exotic vegetation. Nineteen parks reported that non-native plants were invading and displacing native ones.

Exotic plants are brought to Canada from around the world, most unintentionally. Examples are purple loosestrife in Point Pelee National Park, crested wheatgrass in Grasslands National Park, and knapweed in Elk Island National Park. In these cases, control methods are being planned or implemented. In other cases, invasions are so widespread that there are no practical control measures.

Many of the reported stresses simply confirm how connected protected areas are to the rest of the country. Nineteen parks have transportation or utility corridors, either electric lines and gas pipelines, or through highways and railways. Many parks reported impacts from forestry and agriculture. These latter stresses occur external to the park boundary, but are certainly within the regional ecosystem. For exam-

Figure 2
Number of National Parks Reporting Significant Ecological Impacts from Various Human Stresses



*34 national parks surveyed

Figure 3
National Parks Reporting Significant Ecosystem Stresses in 1992

National parks and reserves	Stresses																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
Gros Morne		x	x		x	x		x	x	x	x				x		x	x	x												
Terra Nova	x		x					x		x		x			x																
Fundy	x	x	x		x	x		x		x		x															x				
Kouchibouguac	x		x	x		x	x		x	x	x			x	x			x			x		x	x		x	x	x			
Cape Breton Highlands	x		x	x	x	x		x	x	x	x																				
Kejimkujik	x			x	x							x							x												
Prince Edward Island	x	x	x	x	x		x	x				x	x	x				x				x						x			
Forillon			x			x	x	x	x			x	x				x	x		x		x									
La Mauricie	x	x		x	x	x	x	x	x	x	x	x	x				x				x							x			
Mingan Archipelago				x			x					x			x			x													
Bruce Peninsula	x		x																								x				
Georgian Bay Islands	x	x	x	x	x		x	x	x	x	x	x			x	x		x		x	x	x									
Point Pelee	x	x	x	x		x							x	x	x		x	x	x	x		x		x			x				
Pukaskwa	x	x	x			x			x	x		x	x			x	x	x	x	x											
St. Lawrence Islands	x	x		x	x	x	x				x			x		x	x	x	x	x							x				
Riding Mountain	x	x	x	x	x		x		x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Grasslands	x			x	x	x						x	x	x	x		x	x	x	x											
Prince Albert	x	x	x	x	x	x	x	x		x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Banff	x		x	x	x	x	x		x	x	x	x	x		x		x		x								x				
Elk Island	x	x		x			x	x		x	x	x								x	x								x		
Jasper	x	x	x	x	x	x						x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Waterton Lakes	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Glacier				x	x					x			x				x														
Kootenay	x	x	x	x		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Mount Revelstoke				x	x					x			x				x			x											
Pacific Rim	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Gwaii Haanas												x																			
Yoho	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Auyuittuq																															
Eillesmere Island											x										x					x	x				
Nahanni	x								x	x		x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x		
Wood Buffalo	x			x	x	x																									
Kluane	x		x	x	x	x	x	x	x				x			x			x												
Ivvavik									x																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		

Legend

- 1. Visitor/tourism facilities
- 2. Exotic vegetation
- 3. Utility corridors
- 4. Urbanization
- 5. Dams
- 6. Forestry*
- 7. Agriculture*
- 8. Exotic mammals
- 9. Sport fishing
- 10. Sport hunting*
- 11. Park management practices
- 12. Acidic precipitation
- 13. Exotic birds
- 14. Commercial fishing
- 15. Mining*
- 16. Petrochemical pollution
- 17. Exotic fish
- 18. Pesticides
- 19. Poaching
- 20. Exotic invertebrates
- 21. Heavy-metal pollution
- 22. Park infrastructure
- 23. Exotic micro-organisms
- 24. Human disturbance
- 25. Vehicle/animal collisions
- 26. Climate change
- 27. Solid waste
- 28. Sewage
- 29. Ground-level ozone

*External to the park

ple, Riding Mountain National Park is surrounded by intensive agriculture. At parks such as Fundy, Pukaskwa, Yoho, and Pacific Rim, logging occurs up to their borders.

Stress from park management practices (such as fire suppression) was reported from 13 parks. Since periodic wildfire is a necessary dynamic element of many park ecosystems, suppression of wildfire can have undesirable consequences. However, it is impossible to let all wildfires burn in parks, for reasons of public safety, facilities, or adjacent timber resources. To solve this dilemma, Parks Canada has introduced a fire management program that uses prescribed burns to mimic wildfire. Prescribed burning is now successfully being carried out in Banff, Elk Island, Waterton Lakes, Jasper, Riding Mountain, Nahanni, Wood Buffalo, and La Mauricie National Parks, and is being planned in several other national parks.

Some of the more traditional national park concerns were reported as significant from only a few parks. Issues like vehicle kills, solid waste, and sewage were reported from only four parks. These stressors are from sources primarily within park boundaries or are small in scale and have been successfully dealt with by park management. They

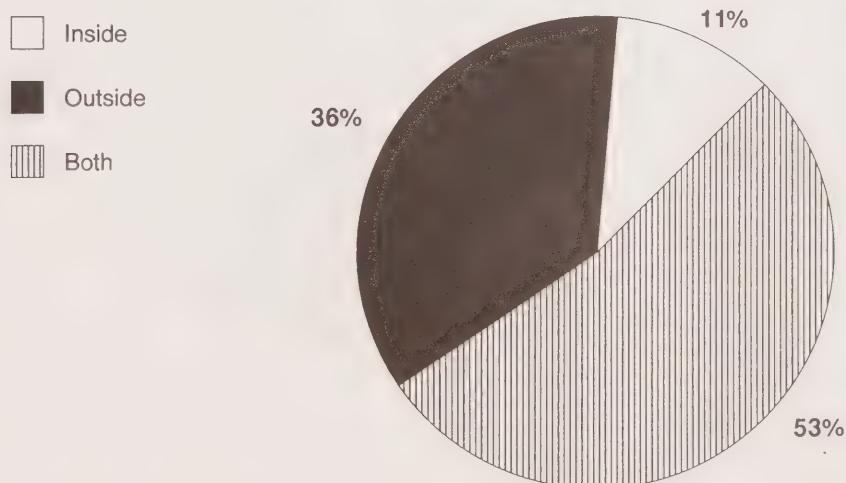
stand in contrast to the larger regional issues that need to be addressed.

Figure 4 presents a summary of the origins of the 29 stresses, relative to park boundaries. Only 11% of all reported stresses have an origin within parks. Fully 36% of stresses have their origin totally outside park boundaries, and 53% of all stresses occur without regard to boundaries.

Figure 5 presents the spatial scale of all the stresses. The majority (over 50%) of all stresses were reported to be acting over an area of greater than 100 km². Only 2% of stresses were acting on a local scale, defined as less than 1 km². The large spatial scale of these issues points out the need to consider management options on an ecosystem basis.

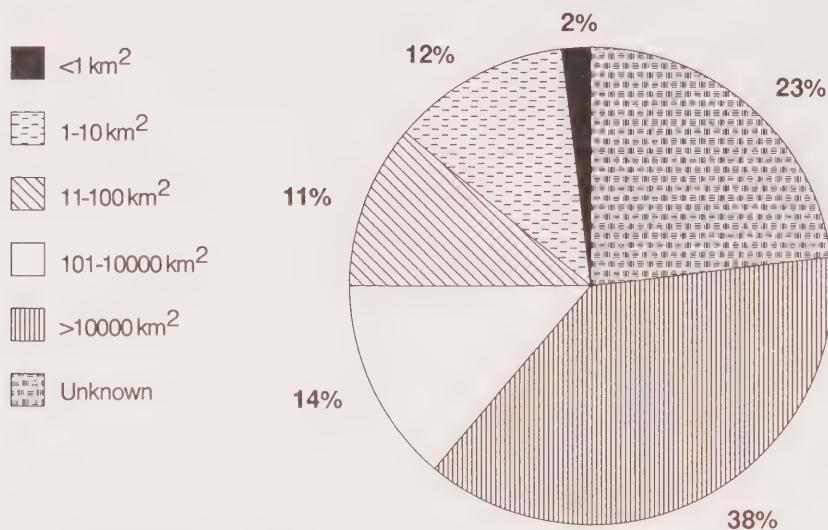
The integration of national park activities into broader regional ecosystems requires an outward-looking perspective. Superintendents have a mandate for this set out in the new Parks Canada Guiding Principles and Operational Policies (1994). Such an approach has public support as demonstrated through a 1993 survey indicating that 93% of Canadians believe that Parks Canada should be more involved in protecting areas near national parks when activities in those areas threaten the parks' natural resources (Angus Reid, 1993).

Figure 4
**Summary of the Origins of All Ecological Stressors Impacting
upon Canadian National Parks with Reference to the Park Boundary***



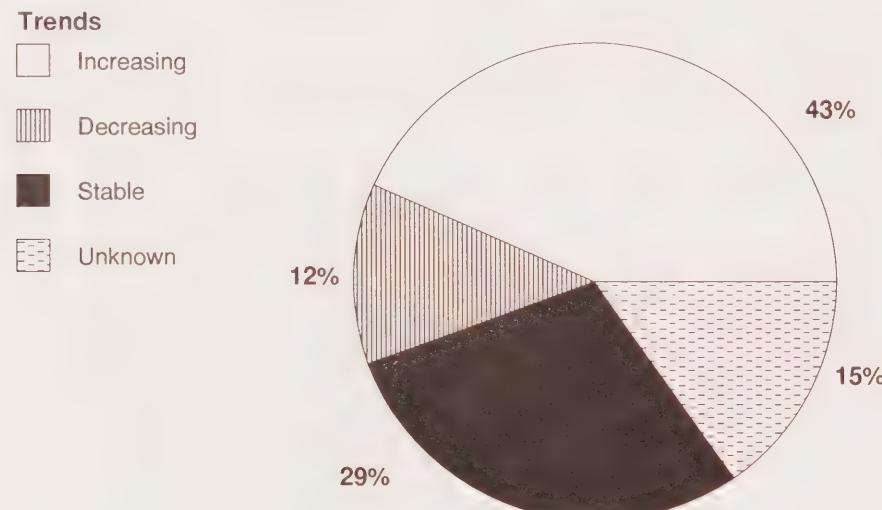
* 34 national parks surveyed

Figure 5
**Spatial Scale (km^2) Reported for 29 Ecological Stressors
Impacting upon Canadian National Parks***



* 34 national parks surveyed

Figure 6
**Summary of Trends Reported for Ecological Stressors
Impacting upon Canadian National Parks***



* 34 national parks surveyed

Figure 6 summarizes the observations on trends that were reported for ecological stresses. Forty-three percent of stresses were reported to be increasing while 12% were decreasing. The remaining stresses were either stable or the trend was unknown. It is no longer enough to consider an area protected by just designating it as a park. The increasing number and scale of impacts require professional expertise and active management.

What is the actual ecological *impact* of all the stresses? Figure 7 summarizes the kinds of impacts reported by the national parks. Because the questionnaire surveyed 34 parks and asked questions regarding 29 different stresses, there are hundreds of possible combinations of answers. To ensure uniformity, the questionnaire teams had to select answers from a list of 14 possible ecological impacts. Multiple answers were possible, as a given stress might have more than one impact.

Figure 7 indicates that ecological changes of many kinds appear to be occurring. Most commonly reported was a change in community structure, where the mix of species in an area was markedly changed. An example is the widespread changes in forest vegetation that occur when white-tail deer invade an area. There were also many reports of populations that were reduced to very low levels, so that their role in the ecosystem was virtually absent. For example, there are very low populations of pine marten in Cape Breton Highlands National Park and of woodland caribou in Pukaskwa National Park.

Soil or water pollution was reported from areas such as St. Lawrence Islands National Park.

Habitat loss or habitat fragmentation was reported for most parks. The critical issue of habitat fragmentation is discussed in some detail later in this report. There were also reports of losses of species from parks or of parts of their previous range within parks. In many cases it is impossible to accurately document the loss of a species. For example, the last sighting of a lynx in the Fundy National Park area was 1978. In all probability this species has disappeared throughout the Maritime provinces. Similarly, the bullfrog has not been sighted in Point Pelee National Park since 1991. The species is increasingly rare throughout its range in Ontario, yet it was extremely common only ten years ago.

However, some of the reported stresses had no perceived impact on the system. Ecosystems can resist stress, and not all stresses will result in problems.

HABITAT FRAGMENTATION

In Canada, human activity and natural biodiversity are concentrated in the same areas: the biologically productive southern regions. These areas are relatively flat and located at lower elevations, along shorelines and coastlines, where the soil is better and the climate is warmer or less seasonally extreme.

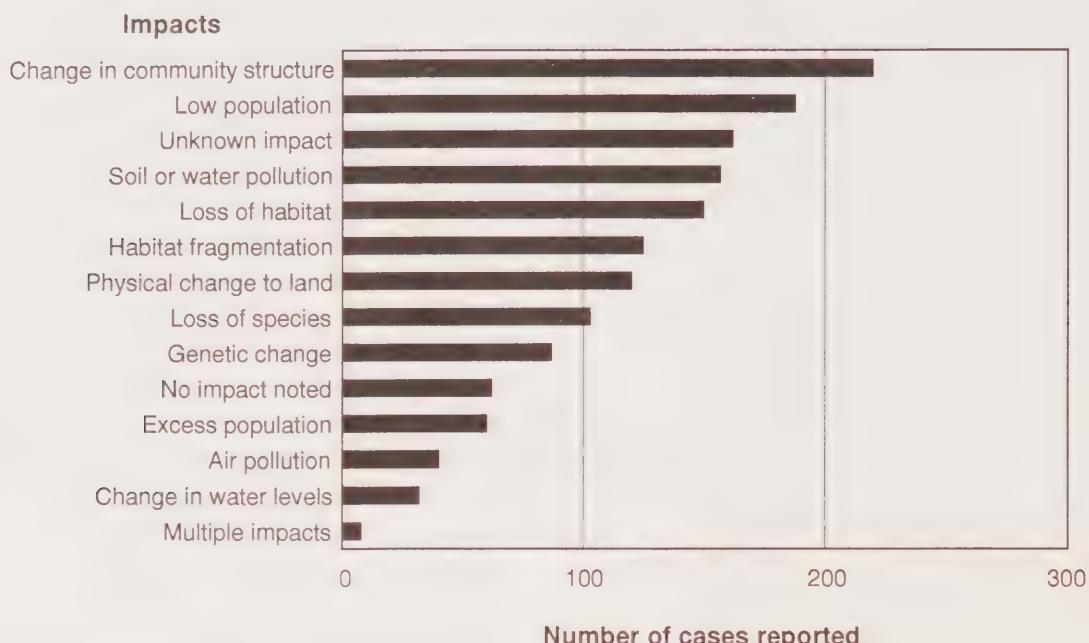
In these areas, land is usually cleared selectively, with the best soil types cleared first. The result is habitat fragmentation, with natural habitats either lost or isolated. The agricultural areas are then often overtaken by urbanization — a pattern exemplified by the drastic alteration of the natural ecosystems of the Great Lakes–St. Lawrence lowlands and the prairies (Map 5 and Map 6).

This pattern of land use and the resulting fragmentation of natural ecosystems occurs in regions surrounding some national parks. The ecosystems within southern national parks are, after all, fragments of the original regional ecosystems. As such, they are affected by land-use changes in the greater region. Certain species that currently persist in parks may not survive in the long run, unless measures can be taken in co-operation with regional land managers.

ECOSYSTEM-BASED MANAGEMENT

A variety of legislative, regulatory, policy, planning, and management tools, as well as natural and social science disciplines, are combined to help Parks Canada manage and preserve national park ecosystems. Management involves rehabilitation, restoration, conservation, and maintenance of ecosystem integrity. The relatively new emphasis on the ecosystem approach — as opposed to thematic “resource or species” management — will see Parks Canada and other partners further develop and apply

Figure 7
Number of Reported Cases for a Variety of Ecological Impacts
from a Survey of 29 Ecological Stressors in Canadian National Parks*



Categories of Ecological Impacts

A significant change in **community structure**. An example would be the widespread changes in vegetation brought about by white-tailed deer moving into an area.

A significant **reduction of a population** so that its function in the ecosystem is severely reduced. An example would be a decline in falcon populations due to DDT.

Change is **unknown**.

A significant change in **water or soil chemistry**. An example would be excess nitrogen levels in a lake or increased leaching of calcium from soils.

Significant **habitat loss**. This refers to the elimination of an area of specific wildlife habitat. Wildlife is defined as any native species, including plants and animals.

Significant **habitat fragmentation**. This refers to the division of once-continuous habitat into smaller patches. Fragmentation can occur from road building, forestry, or agriculture.

A significant modification of the **physical environment**. Examples would be soil erosion, mass wasting, or removal of gravel deposits.

A **loss of a native species** in the ecosystem. An example would be the loss of bullfrogs in Point Pelee.

A significant change to the **genetics of a population**. This could be from mutagenic agents or inbreeding depression in a small population.

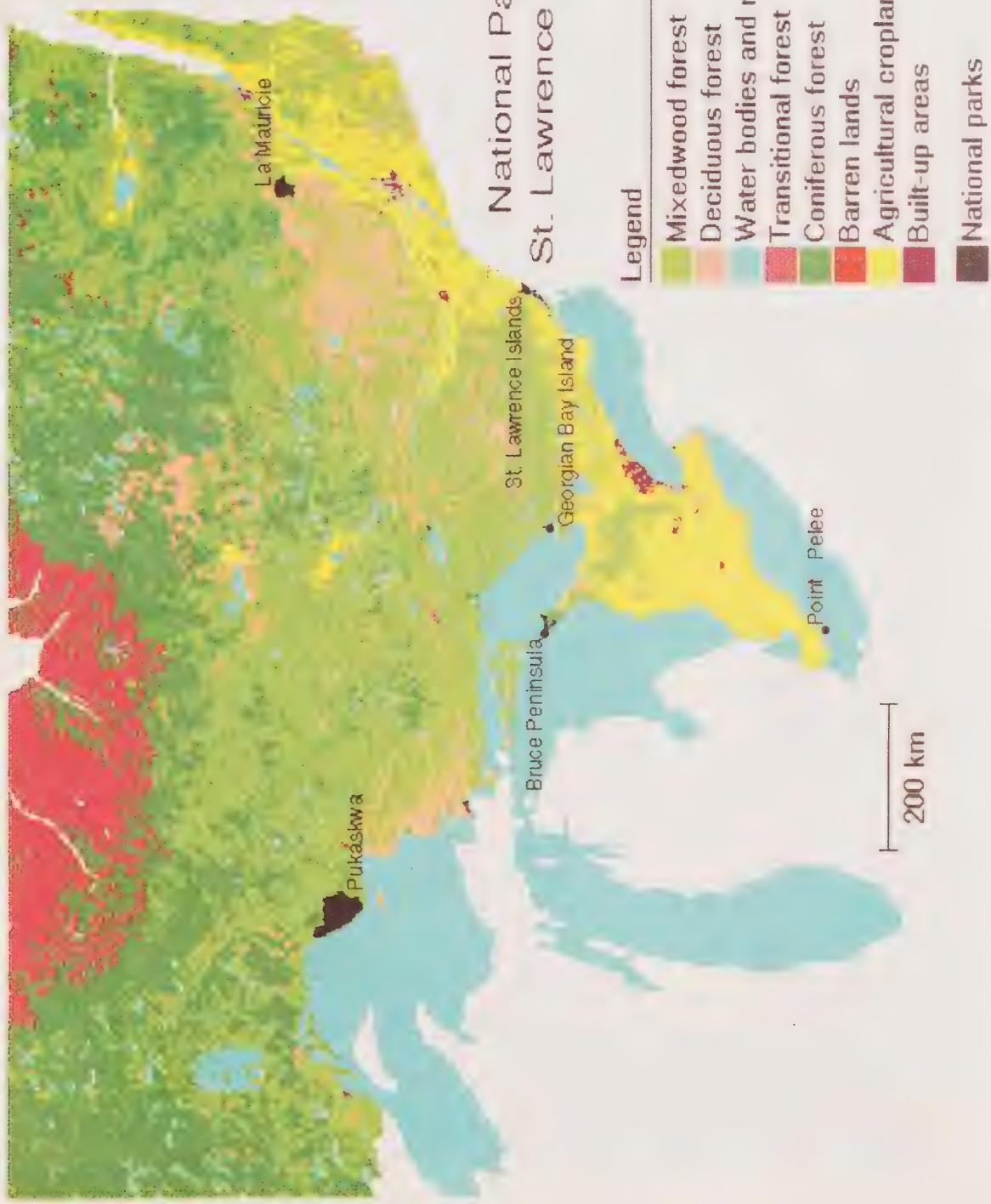
No significant ecological impact suspected at this time. All stresses will not be causing significant ecological impact. For example, some parks might be receiving periodic ozone stress, but it will be too little or infrequent to cause significant impacts.

A significant **increase in a population** so that its function in the ecosystem is drastically changed from its previous role. One example would be a raccoon population that is very high due to garbage availability, resulting in extreme levels of predation on turtle nests.

A significant change in **air quality**, such as sulphur dioxide from a sour gas well.

A significant change in **water levels**, either above ground in lakes and in rivers or below ground, in the water table.

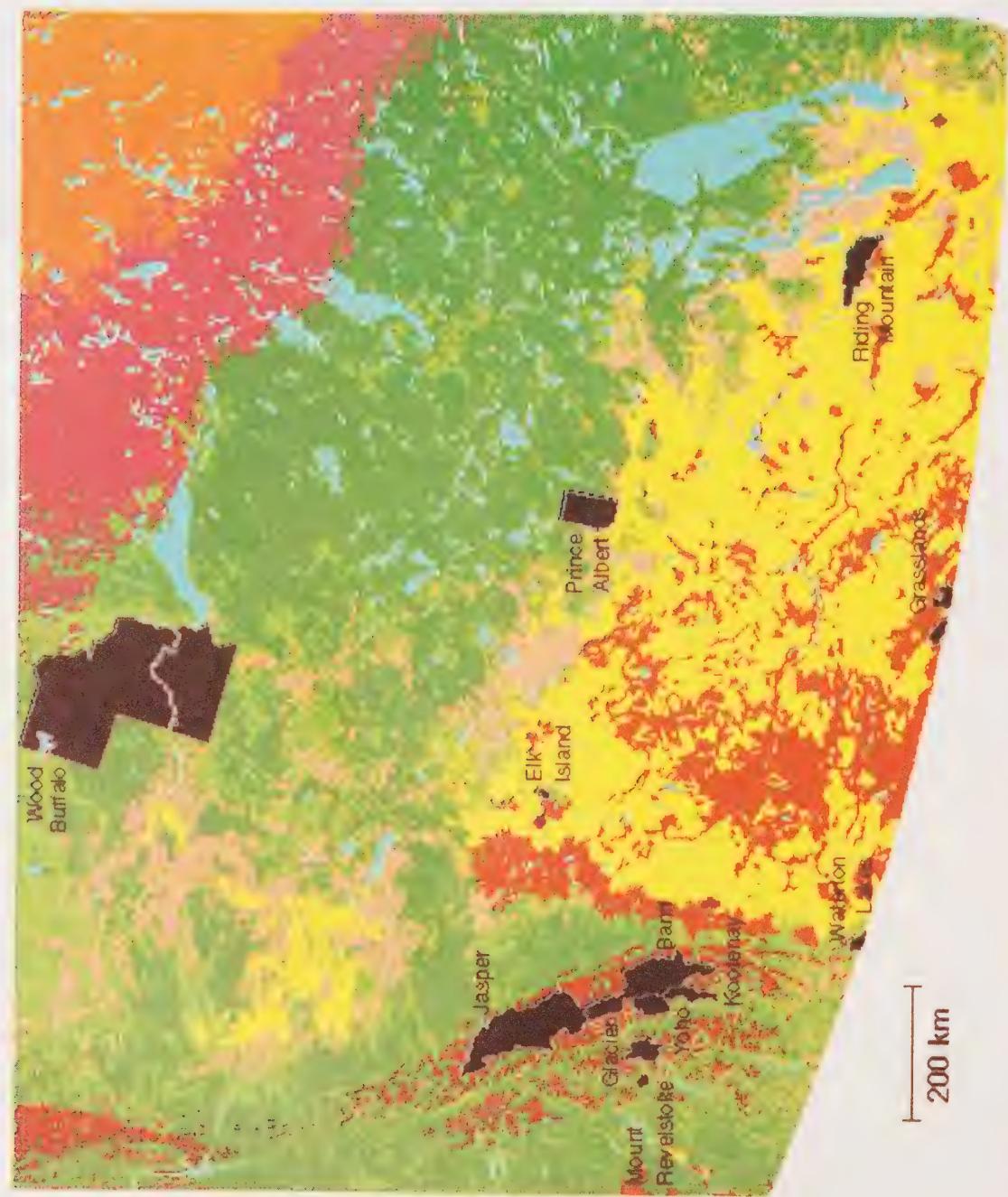
* 34 national parks surveyed



Map 6 National Parks and Land Cover Prairies

Legend

- Mixedwood forest
- Deciduous forest
- Water bodies and rivers
- Transitional forest
- Coniferous forest
- Arctic/Alpine tundra
- Barren lands
- Perennial snow or ice
- Agricultural cropland
- Rangeland and pasture
- Built-up areas
- National parks



THE ESSEX COUNTY, ONTARIO, NATURAL HABITAT RESTORATION PROGRAM

Point Pelee National Park is located in Essex County, Ontario, and it represents the Canadian Carolinian Zone in the national park system. The park and its co-operating association, The Friends of Point Pelee, are collaborating with the Essex County Field Naturalists' Club, the Essex Region Conservation Authority, the Ontario Ministry of Natural Resources, Agriculture Canada, the County of Essex, the City of Windsor, and Landscape Ontario in a project to protect and restore the few remaining ecologically significant natural areas in the county.

Funding has been donated from Bausch and Lomb Canada and the Environmental Partners Fund of Environment Canada.

One of the major projects is to restore the natural habitat to the fullest extent possible, by removing non-native species, collecting and germinating native plants and restoring sites, and reintroducing extirpated species, such as the southern flying squirrel, where suitable habitat exists.

monitoring, trend analysis, and cumulative impact assessment tools.

In response to the growing awareness that the ecological integrity of national parks is closely linked to the regional ecological setting, parks are encouraging co-operative regional land-use planning and management, and environmental monitoring. This mandate has been clarified in the 1994 Guiding Principles and Operational Policies.

Partnerships — with forestry and agriculture industries, Aboriginal people, provincial parks agencies, private landowners, and environmental groups — take a broad regional approach to understanding ecological interactions and managing for a sustainable landscape. Some examples include:

- model forest programs in areas around Pacific Rim, Jasper, Prince Albert, and Fundy National Parks, and
- biosphere reserve programs at Bruce Peninsula, Riding Mountain, and Waterton Lakes National Parks.

MONITORING

Natural resource monitoring takes place in most national parks for at least one of the following reasons:

- ongoing routine monitoring for management purposes,
- short-term monitoring to understand and resolve specific issues, and
- research monitoring to better understand park ecosystems.

Most parks now have between 5 and 20 monitoring programs under way. Here are some current examples:

Wood Buffalo	- weather, lightning, and forest-fuel conditions for fire management.
Point Pelee	- deer counts, browse surveys, and forest regeneration studies for deer management.
La Mauricie	- catch and effort reporting for sport-fish management.
Mountain parks	- road-kill examinations of large mammals to obtain data to promote wildlife protection.
Gros Morne	- cut-block mapping to manage domestic wood harvesting.
Elk Island	- ungulate counts for herd management and surplus animal removal.
Glacier	- snow-pack conditions for avalanche prediction and control.

KEJIMKUJIK NATIONAL PARK — CO-OPERATIVE INTEGRATED MONITORING

Located in southwestern Nova Scotia, Kejimkujik National Park is downwind of the industrial heart of North America. Therefore, the park is strongly impacted by acid precipitation and other air pollutants. As a result, the park is ideally located for monitoring these regional and continental phenomena. The occurrence of disjunct plant and animal species more typically found to the west and south also makes Kejimkujik a focus of interest for climate change and population ecology research.

Limnological and biological studies began in 1964. In 1978 the park was selected by Environment Canada to study impact of long-range air pollutants on lakes, streams, soils, and their biota. In 1993 Kejimkujik was designated as Canada's first co-operative ecological research and monitoring site, involving a broad spectrum of participants. Additional monitoring programs are being implemented by various agencies and universities to study aquatic and terrestrial ecosystems in context with such phenomena as global warming, ozone-level depletion, and habitat fragmentation. Ecological restoration and associated monitoring of Grafton Lake, which has been dammed from 1938 until 1994, has been undertaken recently. In 1994 the park established a co-operative relationship with the Smithsonian Institution/Man and Biosphere Program and has installed two forest biodiversity monitoring plots as part of a worldwide network.

A microcomputer-based integrated ecological information management system is being set up at Kejimkujik which describes all research and monitoring activity in southwestern Nova Scotia and facilitates relational analysis of data sets. Standardized data management protocols for new research and monitoring activity are being established by an information management co-ordinator located at the park.

A research and monitoring steering committee helps direct scientific studies while obtaining input from federal and provincial government agencies, universities, industry, and educators. The park ecologist serves as the site-based project co-ordinator. Parks Canada staff including resource conservation, general works, and visitor activities personnel support scientific programs by conducting research, maintaining facilities, and explaining studies to the public.

The integration of many scientific disciplines at one site, as part of a national network to study environmental stressors and ecosystem function, has already produced some important conclusions.

For example:

- The chemical difference between natural and human-caused acids in aquatic environments has been identified.
- Following increasing sulphate loads in rainfall in the early to mid-1980s, sulphate amounts are now decreasing slightly, as demonstrated in some of Kejimkujik's lakes and rivers. Nitrate loads are increasing, however. Lake and river acidity levels tend to fluctuate widely with extreme pH decreases during snow melt.

- Invertebrate biodiversity and species density in acid-stressed lakes is reduced when compared to better-buffered systems.
- Low pH levels have been associated with decreased reproductive success of brook trout and poor health of white perch.
- The threatened Blanding's Turtle has been monitored for habitat use. Juveniles have been located for the first time in Nova Scotia.

Monitoring activity at Kejimkujik associated with elemental processes, stressors, microclimate and the invertebrates, the common loon, bioproduction, and forest ecology is ongoing. This research will provide essential insight into ecosystem function, human-caused impact, and sustainability for a broad variety of clients provincially, nationally, and internationally.

Ecological monitoring and assessment networks

Managing for ecological integrity requires an integrated approach to research and monitoring. Environment Canada is developing an ecosystem framework for monitoring, the cornerstone of which will be an ecological monitoring and assessment network in each of Canada's ecozones. The primary participants will be governments and universities; industry, schools, and non-government organizations will also be occasional partners.

The objectives of these networks are

- 1) to improve ecosystem knowledge,
- 2) to measure impacts of specific threats,
- 3) to learn causes and consequences of ecological change, and
- 4) to provide early warning of new environmental changes.

Environment Canada suggested that national parks play a partnership role in these networks, mainly by providing relatively undisturbed sites for long-term monitoring. Since these objectives were consistent with national park interests, Parks Canada, in 1992, endorsed the idea that certain national parks join the proposed network. Parks would benefit by orienting objectives and outputs to meet its management needs for collecting information for future state-of-the-parks reports.

Since 1992 there has been considerable progress toward establishing these networks:

- the development of the scientific framework for monitoring ecosystems;
- a 1994 national workshop to refine and endorse the framework (Skibicki et al., 1994);

- Kejimkujik National Park agreeing to become the first park to join, representing the Atlantic Maritime Ecozone (1993);
- Fundy National Park and the Greater Fundy Ecosystem Research Group joining the network (1993);
- La Mauricie and Pukaskwa National Parks considering joining the network; and
- Eastern Arctic District agreeing to play a co-ordinating role.

PRESENTATION IN NATIONAL PARKS

Presentation — a significant part of Parks Canada's mandate — combines a multitude of recreational, educational, and support services that reflect the character of each park and encourage understanding, appreciation, and enjoyment of the park. But these services do more than just enhance enjoyment. They also play an important role in protecting the park's ecosystems.

Protection ultimately depends on the ability of Canadians to understand and appreciate parks and ecosystems, as well as their competence to make ecologically appropriate decisions. Encouragingly, a 1993 Angus Reid survey determined that 92% of Canadians considered "learning about the environment" one of the most important park activities.

In the past few years, Parks Canada has substantially changed its views on "presentation." Two of the specific presentation elements — partnerships and access for persons with disabilities — have been discussed earlier in the report. This section elabo-

rates on the educational programming component as it relates to national parks.

Visitor statistics

Visitor statistics can be viewed as rough indicators of presentation opportunities and awareness building. They can also be viewed as rough indicators of pressures on park ecosystems. However, statistics alone are not sufficient as indicators of either. For such statistics to be meaningful as indicators, they would need to be related to the specific motivation and activities of the visitors and to the concentration (in time and space) of visits in relation to ecosystem fragility and park management.

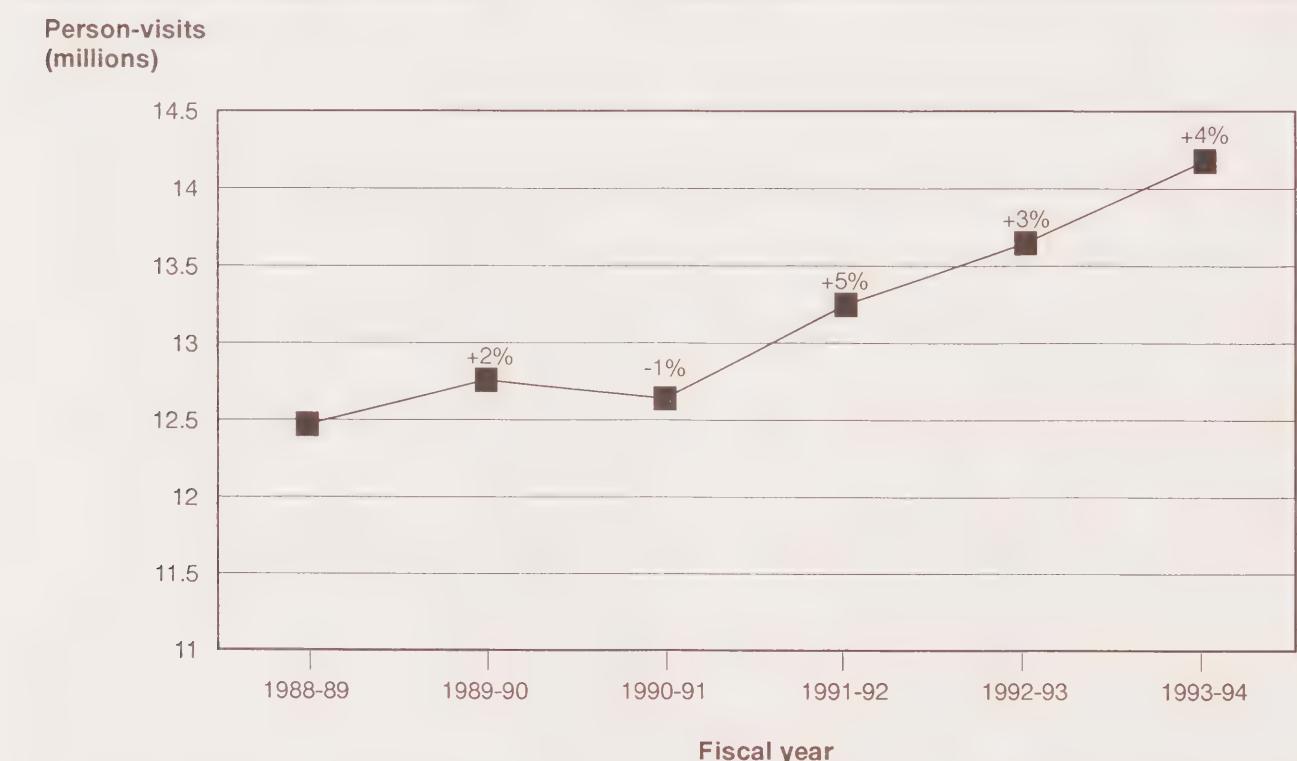
Nevertheless, the trend in visitation to national parks indicates that attendance has been increasing annually by 3% and 5% over the past three years (Figure 8). In the 1993 Angus Reid survey, almost one-third of Canadians reported that they had visited a national park in the past year.

Educational programming

Educational programming in national parks still includes all the traditional interpretation and outreach activities, and the focus is still on the approved themes for the park. Yet programming now goes beyond communicating the themes and the wonders of the parks. The context, audiences, and methods of delivery have all changed.

The context of programs is now much broader, with park themes interpreted within the context of ecosystems. A specific program on grizzly bears might, for example, include information on the natural history and range of the species, followed by a discussion revolving around the fact that a healthy population probably needs an area much bigger than the park to survive. A more general program may present the park as part of Canada's system of protected areas. Or it might discuss park issues in relation to broader environmental, sustainability, or economic factors. Such programs are more relevant to today's visitors.

Figure 8
Trends in Attendance at National Parks



Environmental citizenship

Another change in presentation has made educational programming more relevant to visitors: environmental citizenship (citizens having responsibility for the environment and being knowledgeable enough to act responsibly).

Almost all Canadians (94%) agree that Parks Canada should encourage more environmental responsibility (Angus Reid, 1993). And Parks Canada has responded by developing, with the Canadian Wildlife Service, a learning program about protected areas, wildlife, and cultural heritage — called the Spaces and Species Learning Program.

Lacking sufficient resources to get into the hearts and minds of all Canadians directly, it was decided early that the program would concentrate on providing high-quality, credible information.

- The Nature of Canada: A Primer on Spaces and Species (1994). This 200-page document contains, in plain language, what all Canadians should know about Canada's Green Plan goals for protecting natural and cultural heritage and species. It is designed to be used by formal educators to develop curricula and by other interested parties as a resource for creating specific environmental education products or programs.
- A series of brief, issue-specific fact sheets, or "snapshots," geared to the general public. *The Wonder of Biodiversity* (1994) and *The Nature of Canada* (1993) were completed. Three others are in production.

Partnerships

Partnerships are the foundation of the delivery of this learning campaign. For example, Parks Canada and World Wildlife Fund Canada co-operated to support the Endangered Spaces Campaign. The result was 80,000 national parks and national historic sites visitors learning about and signing the Canadian Wilderness Charter. Parks Canada and the Canadian Nature Federation co-operated to produce a special issue of the Federation's newsletter, *Nature Alert*, on Spaces and Species (1992).

Audiences

Audiences are being selected with certain goals in mind. In Riding Mountain National Park, for example, it was realized that local residents were not recipients of much of the park programming, but that they are significant stakeholders. The educational program has since been reoriented to better meet the needs and interests of the local residents. The greater understanding and consequent greater co-operation permits the park to exercise its protection mandate more effectively.

Many parks are asking "How can we reach larger audiences with the same resources?" A key answer is partnerships. For example:

- National parks in Alberta have reorganized their operations so that some staff are responsible for working with local communities and others for working on environmental education. Literally hundreds of co-operative projects are ongoing.
- Through the work of regional staff in Alberta, an environmental education society known as FEESA published a special edition of its newsletter based on *The Nature of Canada: A Primer on Spaces and Species*. FEESA also operated a summer institute to provide teachers with first-hand experience on the issues covered in the document.
- In Pacific and Yukon Region, Parks Canada co-operated with the Government of British Columbia to produce a *Backyards Biodiversity Edukit* (1994) for schools in the province.
- Point Pelee National Park is working to motivate landowners to protect privately owned examples of Carolinian forest and to restore still others. Because it is so small, Point Pelee alone cannot effectively protect the whole ecosystem.

Awareness and visits

Recent research has highlighted that the demographic composition of some urban areas is changing rapidly, affecting awareness of and visits to parks. In the Toronto area, for example, (where 3.8 million people, or 14% of the Canadian population, live), more than 36% of the residents were born outside of Canada. Studies have shown that most Torontonians, in particular primary and secondary school students, are not aware of Canada's national parks.

INTERPRETATION PROGRAM FOR NATIONAL PARKS IN QUEBEC REGION

Quebec's national parks provide outdoor activities and interpretation services tailored to the distinctive features of each park, while meeting the needs of visitors with various interests. In addition to enjoying themselves in protected environments, visitors gain an awareness of the fragile nature of the ecosystems around them and acquire valuable knowledge about our cultural and natural heritage. This gives visitors the opportunity to understand the requirements of a healthy, sustainable environment.

For example, during the summer of 1993 at the Mingan Archipelago National Park Reserve, almost all the 25,000 tourists participated in one of the ten interpretation activities offered at the visitor reception centre, on cruise boats, or on the islands of the archipelago. In Forillon National Park in Grande-Grave, the animation program was a success with tourists: 35,000 visitors relived the hardships of a bygone era in a 19th-century fishing village. In La Mauricie National Park, an average of 25,000 campers per year participate in the various activities offered by the interpretation service in the amphitheatres of three campgrounds in order to gain a better appreciation of the natural environment.

To address this concern, Parks Canada initiated a project, in 1991, to produce teaching modules (Edukits) for grades 9 and 10 Geography "Canada Studies" courses. The concept and the modules were developed co-operatively with the boards of education and their geography education consultants. The purpose of the edukit was to instill awareness of the natural regions of Canada and the role of the national parks system. The module was so successful in its first year of use that other school boards now wish to use it.

Evaluation

A major review of Parks Canada's public education programming is planned to evaluate and improve its effectiveness. In the meantime, according to the 1993 Angus Reid survey, one out of three Canadians said they had had a positive experience in a national park — one that had changed their behaviour, values, or attitudes toward the environment. The same survey revealed that Parks Canada and national parks staff are viewed as the two most believable sources of information on environmental issues.

NATIONAL HISTORIC SITES

National historic sites, symbols of Canada's human heritage and identity, are among the most valued places in Canada. Located in all parts of the country, they reflect the national dimensions of our history.

Protecting and presenting these places is an important responsibility — a trust each generation carries out on behalf of previous and future generations.

PROGRESS TOWARD A MORE REPRESENTATIVE SYSTEM OF NATIONAL HISTORIC SITES

A national historic site is a place that has been designated as being of historical importance to the whole nation by the Government of Canada. Some of these sites date back thousands of years, others derive their significance from historical associations within living memory. Some are very small, others encompass extensive cultural landscapes or wilderness areas. Taken together, they depict the richness and diversity of Canada's human history.

The overall system of national historic sites consists of over 750 places across the country. Only one in six of these is managed by Parks Canada. Most of the others are owned by other levels of government, private and public corporations, heritage groups and agencies, and individual citizens.

Many national historic sites continue to perform their traditional functions — as legislatures, for example, or hotels, railway stations, and places of worship. Many are not protected by heritage legislation, and their historical importance is not clearly explained, though their significance as landmarks may be widely recognized. Although the system is rich in its diversity, many aspects of our human history — dating back some 20,000 years and set in

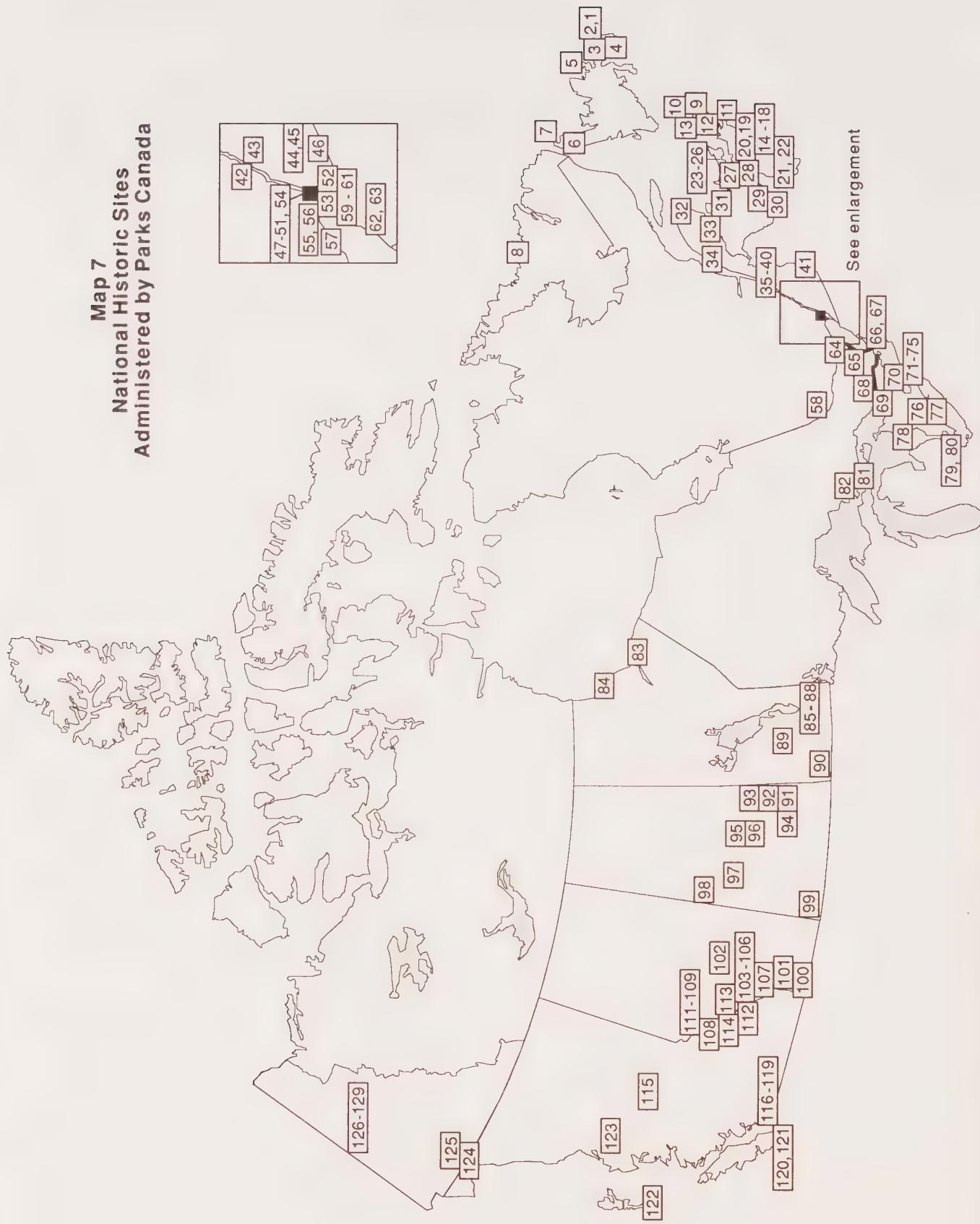
the second-largest country in the world — are not represented in the system.

THE SYSTEMS PLAN

The Parks Canada systems plan for national historic sites is a general guide for Parks Canada's financial and/or administrative involvement (beyond the level of putting up a historical plaque and/or providing *ad hoc* professional or technical support) in conserving and interpreting national historic sites. The plan helps in identifying potential sites for involvement and in establishing research priorities for future initiatives.

For systems planning purposes, the current focus for assessing adequacy of representation is on the 129 national historic sites administered by Parks Canada (see Map 7), plus an additional 52 non-federal national historic sites covered by agreements negotiated under the Historic Sites and Monuments Act since the late 1950s. It does not include the 569 other national historic sites.

Map 7
National Historic Sites
Administered by Parks Canada



National Historic Sites Administered by Parks Canada

Alberta	67 Bellevue House	100 First Oil Well in Western Canada
1 Cape Spear	68 Trent-Severn Waterway	101 Bar U Ranch
2 Signal Hill	69 Saint-Louis Mission	102 Rocky Mountain House
3 Hawthorne Cottage	70 Bead Hill	103 Banff Park Museum
4 Castle Hill	71 Butler's Barracks	104 Cave and Basin
5 Ryan Premises	72 Fort George	105 Sulphur Mountain Cosmic Ray Station
6 Port au Choix	73 Fort Mississauga	
7 L'Anse aux Meadows	74 Navy Island	
8 Hopedale Mission	75 Queenston Heights	106 Skoki Ski Lodge
Nova Scotia	76 Woodsides	107 Abbot Pass Refuge Cabin
9 Fortress of Louisbourg	77 Southwold Earthworks	108 Athabasca Pass
10 Marconi	78 Point Clark Lighthouse	109 Jasper Park Information Centre
11 Grassy Island	79 Fort Malden	110 Jasper House
12 St. Peters Canal	80 Bois Blanc Island Lighthouse	111 Yellowhead Pass
13 Alexander Graham Bell	81 Fort St. Joseph	
14 Fort McNab	82 Sault Ste. Marie Canal	112 Kicking Horse Pass
15 Georges Island		113 Twin Falls Tea House
16 Halifax Citadel		114 Rogers Pass
17 Prince of Wales Tower		115 Fort St. James
18 York Redoubt		116 Gulf of Georgia Cannery
19 Fort Edward		117 St. Roch
20 Grand Pré		118 Stanley Park
21 Fort Anne		119 Fort Langley
22 Port-Royal		120 Fort Rodd Hill
Prince Edward Island		121 Fisgard Lighthouse
23 Ardgowan		122 Ninstints
24 Fort Amherst–Port-la-Joye		123 Kitwanga Fort
25 Province House		124 Chilkoot Trail
26 Dalvay-by-the-Sea Hotel		
New Brunswick		
27 Fort Gaspareaux		125 S.S. Klondike
28 Fort Beausejour		126 Dawson City Buildings
29 Carleton Martello Tower		127 Dredge No. 4
30 St. Andrews Blockhouse		128 Gold Room at Bear Creek
31 Beaubears Island		129 S.S. Keno
Yukon		
59 Sir John Johnson House		
60 Glengarry Cairn		
61 Inverarden House		
62 Battle of the Windmill		
63 Fort Wellington		
64 Laurier House		
65 Rideau Canal		
66 Kingston Martello Towers		
Quebec		
32 Grande-Grave		
33 Battle of the Restigouche		
34 Pointe-au-Père Lighthouse		
35 Grosse île		
36 Fort No. 1 at Pointe de Lévy		
37 Cartier-Brebœuf		
38 Artillery Park		
39 Fortifications of Québec		
40 Maillou House		
41 Louis S. St. Laurent		
42 Forges du Saint-Maurice		
43 Saint-Ours Canal		
44 Chamby Canal		
45 Fort Chamby		
46 Fort Lennox		
47 Sir Wilfrid Laurier		
48 Sir George-Étienne Cartier		
49 Louis-Joseph Papineau		
50 Lachine Canal		
51 The Fur Trade at Lachine		
52 Battle of the Châteauguay		
53 Côteau-du-Lac		
54 Sainte-Anne-de-Bellevue Canal		
55 Carillon Canal		
56 Carillon Barracks		
57 Manoir Papineau		
58 Fort Témiscamingue		
Saskatchewan		
91 Fort Espérance		
92 Fort Pelly		
93 Fort Livingstone		
94 Motherwell Homestead		
95 Batoche		
96 Battle of Fish Creek		
97 Fort Battleford		
98 Frenchman Butte		
99 Fort Walsh		

The core of the 129 national historic sites administered by Parks Canada consists of properties transferred from other federal government departments and agencies to the minister responsible for the national historic sites program.

Indeed, the program represents, at least in part, the instrument by which the federal government acts as a steward of its own heritage properties which, with the exception of some canals and some sites in national parks, no longer perform an operational role. Not surprisingly, these properties bear a strong thematic relationship to traditional federal roles such as defence, public works/transportation (including aids to navigation), law enforcement, national parks, etc.

Recognizing that federal properties are not the only ones important to the nation's history, the Government of Canada has, over the years, acquired a number of other national historic sites. These additions give as well as a more balanced view of Canadian history, a more balanced geographical representation. They include:

- 6 sites representing Aboriginal history,
- 5 sites representing Acadian history,
- 3 sites representing exploration,
- 14 sites representing economic history (e.g. fishery, fur trade, manufacturing, agriculture, ranching),
- 10 sites representing prime ministers and other political leaders, and
- 2 sites representing science and technology.

In the late 1950s the government began to contribute financially to preserving sites that were not owned by the federal government. It was able to do this under the agreements provision of the Historic Sites and Monuments Act. Since 1987, such agreements have been carried out through the National Cost-Sharing Program, established with a funding base of one million dollars per year.

Sites preserved through such agreements include churches, public markets, residences, theatres, and a vessel. Many sites have continued to fulfill their traditional roles (e.g. Saint John City Market). Others have been adapted for other uses, while still retaining their heritage character (e.g. George Brown House in Toronto). In all cases, public access is assured.

PROGRESS SINCE 1990

New Parks Canada-administered sites

Since 1990, ten new national historic sites have been added to the sites administered by Parks Canada, raising the total to 129. Four of these represent new acquisitions and commemorate places associated with a diverse range of Canadian history:

- Ryan Remises in Bonavista, Newfoundland (Atlantic fishery),
- Manoir Papineau in Montebello, Quebec (19th-century Quebec seigneurie belonging to a politician and seigneur),
- Bead Hill in Toronto (17th-century Aboriginal site), and
- Bar U Ranch in Alberta (ranching heritage).

The six other sites are properties in national parks that were already administered by Parks Canada. Five of these commemorate buildings that represent national park rustic architecture. The other is a summer house in the Queen Anne Revival style. Each of these sites makes the point that human expression on the Canadian landscape is an important part of our history and identity.

Non-federal sites

Fifteen non-federal national historic sites have received funding through the National Cost-Sharing Program since 1990, including

- Walker Theatre in Winnipeg,
- Morrin College in Québec City,
- Aberdeen Pavilion in Ottawa, and
- Grey Nuns Convent in St. Boniface, Manitoba.

With assistance from the federal government, restoration work was recently completed on the interior of the Church of Our Lady of Good Hope in Fort Good Hope, Northwest Territories. The government also helped in acquiring land to establish Wanuskewin Heritage Park near Saskatoon, one of North America's most important Aboriginal sites.

Significant progress has been made toward negotiating a type of agreement through which the federal government will work in co-operation with provinces, communities, and First Nations to protect and present national historic sites owned and operated by the community. McLean Mill, near Port

ADDRESSING A MAJOR GAP IN THE NHS SYSTEM

Aboriginal History Sites

- sites of great antiquity
- sites of relevance to the present
- sites of traditional knowledge
- sites of sacred importance

Working with Aboriginal Peoples

- consulting with local communities
- working with elders
- developing sites in partnership
- co-operating in documenting sites

Some Representative Initiatives

- Kejimkujik National Park sites (Atlantic Region)
- Quebec precontact sites (Quebec Region)
- Bead Hill (Ontario Region)
- Nunavut sites (Prairies/NWT Region)
- Cluny–Blackfoot Crossing (Alberta Region)
- Ninstints, Gwaii Haanas National Parks Reserve (Pacific/Yukon Region)

Alberni, British Columbia, and Manitou Mounds, near Fort Frances, Ontario, represent this more comprehensive approach.

with Aboriginal peoples, will be essential to developing the partnerships necessary to building a truly representative and pluralistic system of national historic sites.

GAPS IN THE SYSTEM

The historic sites systems plan review, started in 1990, revealed gaps in the system:

- industrial heritage,
- the history of Aboriginal peoples,
- women's history, and
- the history of cultural communities.

Since 1990, Parks Canada has conducted meetings with key heritage constituencies, specialists in women's history, and Aboriginal peoples across the country on how to commemorate historic sites associated with these priority themes. The discussions revealed that it will take time and effort to gain the confidence and participation of those who have not traditionally been included in this part of the systems process. Ongoing consultations, particularly

FUTURE NEW SITE INITIATIVES

The major vehicle for future new sites initiatives will be partnerships under the National Cost-Sharing Program. Through this program, Parks Canada will co-operate with its partners in protecting and presenting national historic sites recommended for cost sharing by the Historic Sites and Monuments Board of Canada. Cost sharing is an effective way to contribute to the commemorative integrity of historic places — such as urban industrial complexes and cultural resources on Aboriginal lands — that do not lend themselves to federal acquisition.

Table 3 identifies current priority themes and sites, and describes in sequence (from left to right) the status of thematic research, review of thematic

Table 3: Priority Theme and Site Initiatives

Theme	Thematic research	Review of thematic research by HSMBc	Site identification	Ministerial decision	Partnership/acquisition	Implementation-research and planning	Implementation
Canada and the World	- Proposed	✓	<ul style="list-style-type: none"> - CHURCHILL ROCKET RANGE, Churchill, Man. - DEFENCE RESEARCH BOARD CAMPS, Ellesmere Island National Park Reserve, N.W.T. - H.M.C.S. HAIDA, Toronto, Ont. 	✓	Partnership Acquisition		
Energy Development	<ul style="list-style-type: none"> - Oil and gas - Hydro-electric 	✓	<ul style="list-style-type: none"> - ROYALITE PLANT, Turner Valley, Alta. - TORONTO GENERATING STATION, Niagara Falls, Ont. 	✓	Partnership Partnership		
Engineering and Architectural Achievements	<ul style="list-style-type: none"> - Proposed, based on HSMBc papers - Individual architectural/engineering representations 	✓	<ul style="list-style-type: none"> - ABBOT PASS REFUGEE CABIN, Banff National Park, Alta. - JASPER PARK INFORMATION CENTRE, Alta. - SKOKI SKI LODGE, Banff National Park, Alta. - RIDING MOUNTAIN PARK EAST GATE REGISTRATION COMPLEX, Man. - TWIN FALLS TEA HOUSE, Glacier National Park, B.C. - ABERDEEN PAVILION, Ottawa, Ont. - LANDSCAPE COMPLEXES: Works of beautification, 19th–20th century — Niagara Parks Commission, Ont. 	✓	Acquisition		
Fishing	<ul style="list-style-type: none"> - West Coast - East Coast - Inshore - Great Lakes - Proposed: Atlantic lobster and shellfish industry 	✓	<ul style="list-style-type: none"> - GULF OF GEORGIA CANNERY, Steveston, B.C. - RYAN PREMISES, Bonavista, Nfld. - GRANDE-GRAVE, Paspebiac, Que. - PORT DOVER and/or PORT STANLEY, Ont. 	✓	Acquisition	✓	

HSMBC: Historic Sites and Monuments Board of Canada

Progress on site identification, Ministerial decisions, partnership/acquisition, and implementation research and planning made since the last report on the state of the parks (1990) is highlighted in bold.

Theme	Thematic research	Review of thematic research by HSMBC	Site identification	Ministerial decision	Partnership/acquisition	Implementation research and planning	Implementation
Forest Products Industry	<ul style="list-style-type: none"> - British Columbia - Saint John River Valley - Ottawa Valley - Quebec — pulp and paper 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ 	<ul style="list-style-type: none"> - MCLEAN MILL, Port Alberni, B.C. - VIEILLE PULPERIE, Chicoutimi, Que. 	<ul style="list-style-type: none"> ✓ ✓ 	<ul style="list-style-type: none"> Partnership Partnership 	<ul style="list-style-type: none"> ✓ ✓ 	<ul style="list-style-type: none"> ✓ ✓
History of Aboriginal Peoples	<ul style="list-style-type: none"> - Haida sites - Ontario prehistory - Seneca site - Northern commemoration - Proposed - Proposed - Proposed for fur-trade sites - HSMBC paper - Proposed - HSMBC paper - Proposed for First Nations participation in Northwest Rebellion/Resistance of 1885 - HSMBC paper - HSMBC paper - Proposed - Proposed - Quebec prehistory consultations - Ontario prehistory study - Ontario prehistory study - Proposed 	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> - TANU, SKEDANS, and NINSTINTS (Haida), B.C. - MANITOU MOUNDS, Rainy River, Ont. - BEAD HILL, Toronto, Ont. - three sites/complexes north of 60th latitude (Inuit, Dene-Métis, Yukon First Nations) - PORT-ROYAL (Mi'kmaq), N.S. - CARTIER-BRÉBEUF (various First Nations), Québec City, Que. - CHIEFSWOOD (Six Nations), Brantford, Ont. - BATOCHE, Sask. Métis sites to be examined through plan review - CLUNY, BLACKFOOT CROSSING (Siksika Nation), Siksika, Alta. - OUR LADY OF GOOD HOPE (Dene), Fort Good Hope, N.W.T. - DEBERT - BELMONT (Mi'kmaq), near Debert, N.S. - KEJIMKUJIK NATIONAL PARK (Mi'kmaq), N.S. - RED BANK COMPLEX (Micmac), Red Bank, N.B. - CUMMINS PALAEO SITE (Ojibway and Iroquoian Peoples), Thunder Bay, Ont. - AATHERLEY NARROWS (Ojibway and Iroquoian Peoples), Orillia, Ont. - PUASKWA PIT (Ojibway People), Pukaskwa National Park, Ont. 	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> Partnership 	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> ✓

Theme	Thematic research	Review of thematic research by HSMBC	Site identification	Ministerial decision	Partnership/acquisition	Implementation research and planning	Implementation
History of Aboriginal Peoples	<ul style="list-style-type: none"> - HSMBC paper - Proposed - Completed - Proposed - Proposed - Proposed - Proposed 	✓	<ul style="list-style-type: none"> - SEA HORSE GULLY Aboriginal history commemoration (Inuit groups), Churchill, Man. - GRASSLANDS NATIONAL PARK (Plains Aboriginal cultures), Sask. - KITSELAS CANYON (Kitselas First Nation), Kitselas Canyon, B.C. - BEARINGIA (Yukon First Nations), near Old Crow, Yukon - INDEPENDENCE I AND II SITES (Inuit), Ellesmere Island National Park Reserve, N.W.T. - Aboriginal history (Innu and Inuit) in Labrador 	✓			
History of Identifiable Cultural Communities	<ul style="list-style-type: none"> - Proposed 						
History of Women	<ul style="list-style-type: none"> - Proposed 						
Immigration	<ul style="list-style-type: none"> - 1814-1914 - 1814-1914 	✓	<ul style="list-style-type: none"> - GROSSE ÎLE, Que. - PARTRIDGE ISLAND, N.B. 	✓	Acquisition	✓	
Manufacturing	<ul style="list-style-type: none"> - Canada - Canada - Canada - Canada - Canada - Canada - New Brunswick 	✓	<ul style="list-style-type: none"> - LACHINE CANAL CORRIDOR, Montréal, Que. - BRANTFORD, Ont. - CAMBRIDGE, Ont. - TORONTO (east of Yonge St.), Ont. 	✓	Partnership	✓	
Mining	<ul style="list-style-type: none"> - Hard-rock mining - Coal mining (Nova Scotia) proposed 						
Ranching	<ul style="list-style-type: none"> - Alberta Foothills 	✓	<ul style="list-style-type: none"> - BAR U RANCH, Alta. 	✓	Acquisition	✓	

Theme	Thematic research	Review of thematic research by HSMBC	Site identification	Ministerial decision	Partnership/acquisition	Implementation/research and planning	Implementation
Settlement Patterns	- 18th-century seigneurial regime - 19th-century seigneurial regime - Prairie Ukrainian - Prairie Mennonite - Prairie Dryland Mormon	✓	- MANOIR MAUVIDE GENEST, île d'Orléans, Que. - MANOIR PAPINEAU , Montebello, Que.	✓	Partnership Acquisition		
Whaling	- Basque - Arctic	✓	- FOUR CORNERS SETTLEMENT, near Gardenton, Man. - NEW BERGTHAL, Man. - STIRLING, Alta. - RED BAY, Lab. - BLACKLEAD ISLAND and KEKERTON, N.W.T.	✓	Partnership Partnership		✓
Agriculture	- Proposed		- Evaluation of experimental farms				
Commerce			- FARMER'S BANK, Rustico, P.E.I.	✓	Partnership		

research by the Historic Sites and Monuments Board of Canada (HSMBC), site identification, Ministerial decision, the nature of the proposed involvement by Parks Canada, the state of site research and planning,

and implementation. Progress made since the last report on the state of the parks (1990) is highlighted in bold.

NEW POLICIES FOR NATIONAL HISTORIC SITES AND CULTURAL RESOURCE MANAGEMENT

When the Parks Canada policies were publicly reviewed and revised from 1991 to 1994, historic sites and cultural resources were important areas of concentration. The resulting Guiding Principles and Operational Policies, approved in March 1994 by the Minister of Canadian Heritage, will have a significant impact on national historic sites.

NATIONAL HISTORIC SITES POLICY

Highlights of the new National Historic Sites Policy include:

- identification of commemorative integrity as a key program objective for national historic sites;
- commitment to work closely with provincial and territorial governments and heritage interests to achieve commemorative objectives;
- recognition of the vital role played by others, since most of Canada's national historic sites are not owned or operated by the federal government;
- commitment to explore legislative initiatives to improve the statutory protection of national historic sites.

CULTURAL RESOURCE MANAGEMENT POLICY

Highlights of the Cultural Resource Management Policy, which applies to national parks as well as national historic sites, include:

- the use of five fundamental heritage principles (value, public benefit, understanding, respect, and integrity) in all decisions and actions affecting cultural resources administered by Parks Canada as well as in all decisions and actions affecting natural ecosystem features in national historic sites, including historic canals, administered by Parks Canada;
- a holistic approach to site management that integrates protection and presentation;
- multidisciplinary input into decision making;
- a management framework that deals with the whole (the heritage place), as well as the parts that make up the whole;
- recognition of the need to focus on the symbolic and associative meanings of cultural resources as well as their physical properties.

PROGRESS IN DEVELOPING MEASUREMENT SYSTEMS FOR NATIONAL HISTORIC SITES

COMMEMORATIVE INTEGRITY

To assess the overall state of a national historic site, Parks Canada has developed the concept of commemorative integrity. Commemorative integrity describes the health or wholeness of a national historic site. A national historic site possesses commemorative integrity when

- the resources that symbolize or represent the site's importance are not impaired or under threat,
- the reasons for the site's national historic significance are effectively communicated to the public, and
- the heritage values of the site are respected by all whose decisions or actions affect it.

This comprehensive concept encourages a holistic approach to site management that integrates protection, presentation, and operations within a single management framework. At the same time, it allows managers to integrate "state of" information that is collected and generally reported on by type of resource, activity, etc.

For reasons that will become apparent in the following sections, more work is required before site-specific determinations of commemorative integrity for national historic sites can be made. The challenges include

- developing and implementing evaluation measures to assess public awareness of a site's national significance,
- determining what the optimum condition (physical state) of the heritage resources of the site should be (consistent with commemorative

integrity and cultural resource management principles), and

- identifying threats to sites and their resources.

MEASUREMENT AND MONITORING SYSTEMS

Over the years, Parks Canada has developed a number of systems to help it measure various aspects of the state of national historic sites. Some of these systems are intended to direct the way the sites (or specific components thereof) should be managed. These include Themes and Objectives, Identification and Evaluation of Cultural Resources, Management Plans, Scope of Collection Statements, and Service/Business Plans. Others, such as the Recapitalization Management Plan, Archaeological Survey and Assessment, and Interpretive Collection Catalogue, provide benchmark or indicator information on the state of resource knowledge or resource condition.

By the very nature of cultural resource management, these systems evolve to meet new requirements. While there are clear links among some of the systems, it was not until the concept of commemorative integrity was developed that all were linked to an overall policy objective.

Table 4 provides a national overview showing the degree to which these systems form part of the measurement tools for national historic sites administered by Parks Canada. In some cases, for example "Identification and evaluation of cultural resources," the explanation for the incomplete nature of the system is that it is a new initiative.

Table 4: Measurement, Monitoring, and Management Systems*

	Completed	In progress	Not started
Themes and Objectives	65.1%	3.1%	31.8%
Identification and Evaluation of Cultural Resources	3.9%	—	96.1%
Recapitalization Management Plan	84.3%	—	15.7%
Archaeological Survey and Assessment	12.9%	61.4%	25.7%
Management Plan	38.0%	12.4%	49.6%
Scope of Collection Statement	8.0%	92.0%	—
Service/Business Plan	8.5%	13.2%	78.3%
Interpretive Collection Catalogued	96.4%	—	3.6%

Themes and Objectives:

These describe the historical themes to be dealt with at a site, as well as the objectives to be achieved at the site.

Identification and Evaluation of Cultural Resources:

Because cultural resources must be managed in accordance with the Cultural Resource Management Policy, it is essential to identify resources that are to be managed as cultural resources and to determine what constitutes the historic value of these resources.

Recapitalization Management Plan:

This plan contains a listing of all built works (including heritage ones) administered by Parks Canada, along with a description of the physical condition of each resource. The condition ratings are based on an assessment of the time frame within which conservation work must be undertaken to maintain the resource in an acceptable condition. The ratings thus provide a key link to planning and budgetary processes.

Archaeological Survey and Assessment:

This is an inventory and evaluation of known archaeological sites. The information contained

therein feeds into the Identification and Evaluation of Cultural Resources.

Management Plan:

Management Plans provide a guide to the overall management of a national historic site. The goal of management planning for a national historic site is to ensure the commemorative integrity of the site and the application of cultural resource management principles and practice.

Scope of Collections Statement:

Identifies the types of historic objects and reproductions that may be acquired or retained to serve interpretive needs.

Service/Business Plan:

Describes the services to be offered to the public at a national historic site. It includes a mix of programs, services, and support facilities, and the resourcing requirements to sustain such services.

Interpretive Collection Catalogue:

An inventory of all historic objects and reproductions managed by Parks Canada.

* Percentages refer only to those sites where it has been determined the information is relevant.

THE STATE OF NATIONAL HISTORIC SITES ADMINISTERED BY PARKS CANADA

Parks Canada currently administers 129 national historic sites. This section of the report focusses on changes to the 110 sites reported on in 1990. The 19 sites not treated in the 1990 report appear in the profiles section of this report.

CONDITION OF HERITAGE RESOURCES

In describing the condition of resources the focus is on *physical* condition, rather than on a description of work performed or processes in place to determine condition. The distinction is important. The former deals with results, the latter with activity or process. Emphasis on results tends to underestimate the work required or performed in advance of achieving a result (i.e., research, planning, design, and monitoring may be integral to achieving results), whereas emphasis on activities can create the impression that more has been achieved than is actually the case.

Built heritage resources

These resources are structures or works that are essentially intact or that retain enough of their form to be identifiable. The criteria for assessing their condition were refined in 1991 (following completion of the 1990 report) to better reflect the heritage qualities of built resources.

The emphasis is now on "risk to resource." Considerations such as health and safety or level of service — not always heritage-sensitive factors — are no longer included. Their exclusion has not adversely affected the ratings of built heritage resources.

The "risk to resource" rating measures the consequence(s) to the resource, or to other resources, if an unsatisfactory condition is not remedied (e.g. a leaking roof — which also affects interior finishes, structural and mechanical systems, etc.). This rating can also be interpreted as a measure of the increase in damage (and accompanying conservation costs) to

the heritage qualities of the resource if corrective work is delayed.

The following three ratings are used to assess risk to resource:

Good — normal

- no appreciable deterioration in the stability or performance of any of the critical components of the resource (other than normal wear and tear);
- the condition is maintained through routine maintenance procedures.

Fair — minor deterioration

- stability or performance of the resource or its critical components shows minor deterioration;
- the minor deterioration requires some level of corrective work;
- other components or resources are placed at minor risk if the condition is not improved within the required time frame.

Poor — major deterioration

- stability or performance of the resource or its critical components no longer maintains the level of the original design or purpose, or is substantial to a point where operation of the resource should be suspended until the condition is improved;
- other components or resources will suffer if the condition is not rectified within the required time frame;
- abnormal or accelerated deterioration is evident.

The ratings are assigned by experts (architects and engineers) in the conservation disciplines and are based on the risk to the resource if nothing is done. For example, if a resource is in a ruined state and has been consolidated as a ruin and is stable, its physical condition would be described as good, not poor. Similarly, if 150-year-old walls described as being in poor condition could be consolidated, they would be in good condition following the consolidation, regardless of appearance to the untrained eye. Indeed, replacement of these walls, notwithstanding the reuse of the original stone, could

seriously compromise the site's commemorative integrity if the original walls could be stabilized, since cultural resource management requires that the least intrusive means to accomplish objectives be used.

Appendix E of this report provides a site-by-site comparison of the state of built heritage resources reported in 1990 with the state based on the most current information (identified as 1994).

Considerable progress has been made at some sites since the last report, less in others. On the positive side, the trend in condition rating leans considerably more toward improvement than deterioration. One cautionary note: since "poor" is the lowest possible rating, further deterioration in resources that were already considered poor in 1990 would not be reflected in this report.

No change was reported for $\frac{2}{3}$ of the built heritage resources over the four-year period: of these, 43% remain in good condition, 27% in fair condition, and 30% in poor condition.

***In situ* archaeological features**

These consist of surface vestiges or the subsurface remains of human activities.

In 1990 the *in situ* archaeological features at six national historic sites — Fortress of Louisbourg, Les Forges du Saint-Maurice, Navy Island, Fort Wellington, Atherley Narrows (Trent-Severn Waterway), and Batoche — were reported in fragile or poor condition. No change has been reported since then.

Since 1990, erosion has exposed some grave sites at York Factory and at Fort Anne. Otherwise, *in situ* archaeological features are reported to be in stable condition.

Collections

These consist of assemblages of objects: for example, furnishings, works of art, domestic items, etc. Collections range in size from a few objects to several thousand objects.

Appendix F describes what has been done to address site-specific conservation problems that were identified in 1990. Where a need for conservation treatment has been identified, it refers to remedial conservation rather than preventive conservation.

The latter deals with the monitoring and on-going maintenance of collections, whereas the former refers to conservation actions that are more interventionist and should be required on a "first-time/one-time" basis only.

Of the 28 sites that are reported on, progress has been reported at over half. In addition, remote environmental monitoring systems for collections have been installed at Fort Anne, Alexander Graham Bell, and L'Anse aux Meadows.

Since the last report on the state of the parks the emphasis in underwater cultural resource conservation has shifted away from the conservation/restoration of objects to collections management, with the result that maintenance and monitoring are treated as key indicators of the state of the collection.

Research is an important part of conservation.

Testing of

- specialized metal coatings designed to protect objects exposed to weather,
- environmentally friendly wood-finishing products, and
- devices that remove oxygen and hence protect objects from corrosion

are examples of recent research initiatives.

Despite the progress, conservation managers report that there are sites where conservation consists of a quick cleaning just before the site is opened for the season.

PRESENTATION

This section of the report deals with visitation, interpretive services, and other services and facilities.

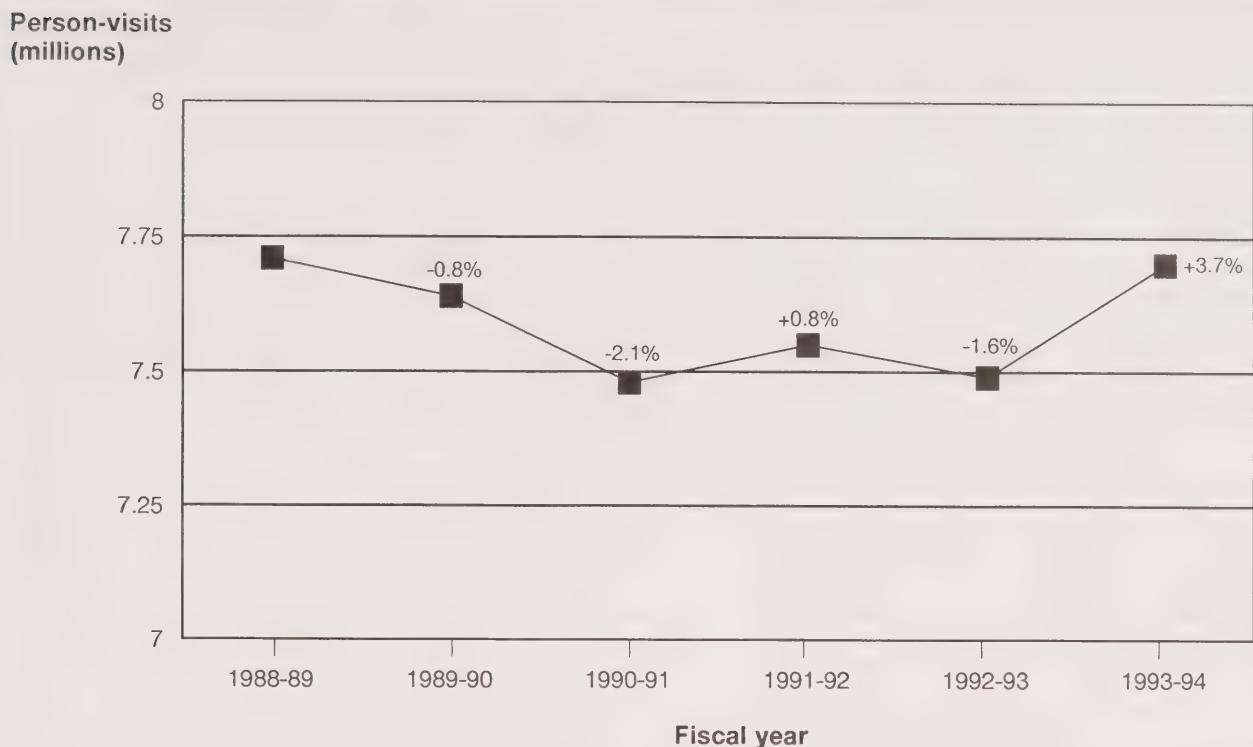
Visitation

Communicating the national significance of historic sites is one of the fundamental components of commemorative integrity — just as important as protecting resources.

Results of recent national surveys show that:

- a vast majority of respondents report "educating myself" (86%) and "to get a sense of history" (85%) to be the reasons they visit historic sites, and

Figure 9
Trends in Attendance at National Historic Sites



- over 90% of respondents believe that Canadians as a whole do not know enough about their history.

Visitation can thus be seen as a key factor in reporting on the state of national historic sites. When the land-based visitation figures for the Rideau Canal and Trent-Severn Waterway are added to the figures for the 77 (*see Figure 9*) other national historic sites administered by Parks Canada that report visitation, approximately ten million visits are made to Parks Canada national historic sites each year. This figure would be considerably larger if national historic sites operated by others (e.g. Stanley Park in Vancouver) were included.

Visitation trends

Between 1988-89 (the visitation period used in the 1990 report) and 1992-93, there was a decrease in visitation at the national historic sites which collect visitor data. In 1993-94, visitation increased, bringing levels close to the 1988-89 results.

Reasons for this visitation slump are numerous:

- the recession,

- the introduction of fees at some sites,
- reductions in hours of operations,
- increased competition for tourism dollars, and
- bad summer weather in 1991 and 1992 (many national historic sites are not open in the winter).

The economic situation has had an impact in all sectors of the cultural and tourism industries. Many North American cultural institutions — including museums and historic sites — experienced a downward trend in visitation over the last few years.

Interpretive services

Some form of interpretive service entailing the use of personal, print, exhibit, and/or electronic media is provided at 99 of the 129 national historic sites administered by Parks Canada. The forms of interpretive service range from a brochure or a descriptive panel to re-created period environments with period activities.

Commemorative integrity requires that the principal emphasis of interpretation be on com-

municating national significance, but that does not mean that other matters relevant to the history of the site can not be dealt with. Indeed, the Cultural Resource Management Policy provides that such matters should be addressed. Since 1990, interpretive programming at many historic sites has been examined to ensure that ethnocultural and gender groups who played a role in the history of these sites receive due attention; for example, Blacks at the Fortress of Louisbourg and the Halifax Citadel, Aboriginal peoples at Cartier-Brébeuf and Fort Walsh, and women at the Halifax Citadel. The communication of natural environmental messages has also been an important initiative. All of these initiatives are consistent with good stewardship provided that they do not impair the site's commemorative integrity (in many cases they contribute to it), but problems can arise when, to cite only one example, recycling depots that overwhelm a site's heritage features or character are installed, or when environmental messages appear to be favoured over commemorative messages.

Information on the condition of interpretive services is not available on a system-wide basis. Therefore, we cannot systematically report on which sites have interpretive services in "good" condition (requiring no attention for the next three to five years), in "fair" condition (requiring attention within the next two years), and in "poor" condition (requiring immediate action). An interpretive assets inventory study, currently under way, which will consider such factors as the currency of various media, should enable us to address this. There is also a need to develop criteria for assessing reductions and enhancements to personal interpretive services and to provide indicators on the type and level of service(s) provided at the different sites.

Since the purpose of interpretation is to reveal meaning and significance, the most important task to be addressed is whether the national significance of historic sites is being effectively communicated to the public through our interpretation programs. Efforts are under way to develop indicators so that this can be addressed.

Since 1988-89 three new visitor centres have opened (at Port au Choix, Grassy Island, and Coteau-du-Lac) and new exhibits, programming, and/or special events have been introduced at 15 national

historic sites. The state of the economy over this period has had an impact in reduced hours of operation at 14 national historic sites and reduced programming at three others. In addition, fire destroyed exhibits at St. Andrews Blockhouse.

Other services and facilities

Other services and facilities include general visitor information, parking, sales shop, washrooms, and food and recreation facilities. Providing better services for the public has been a major concern over the last few years, and judging from on-site surveys, visitors are satisfied. More systematic and updated information should be available for the next report. (*See also "Access for all," p. 12.*)

THREATS

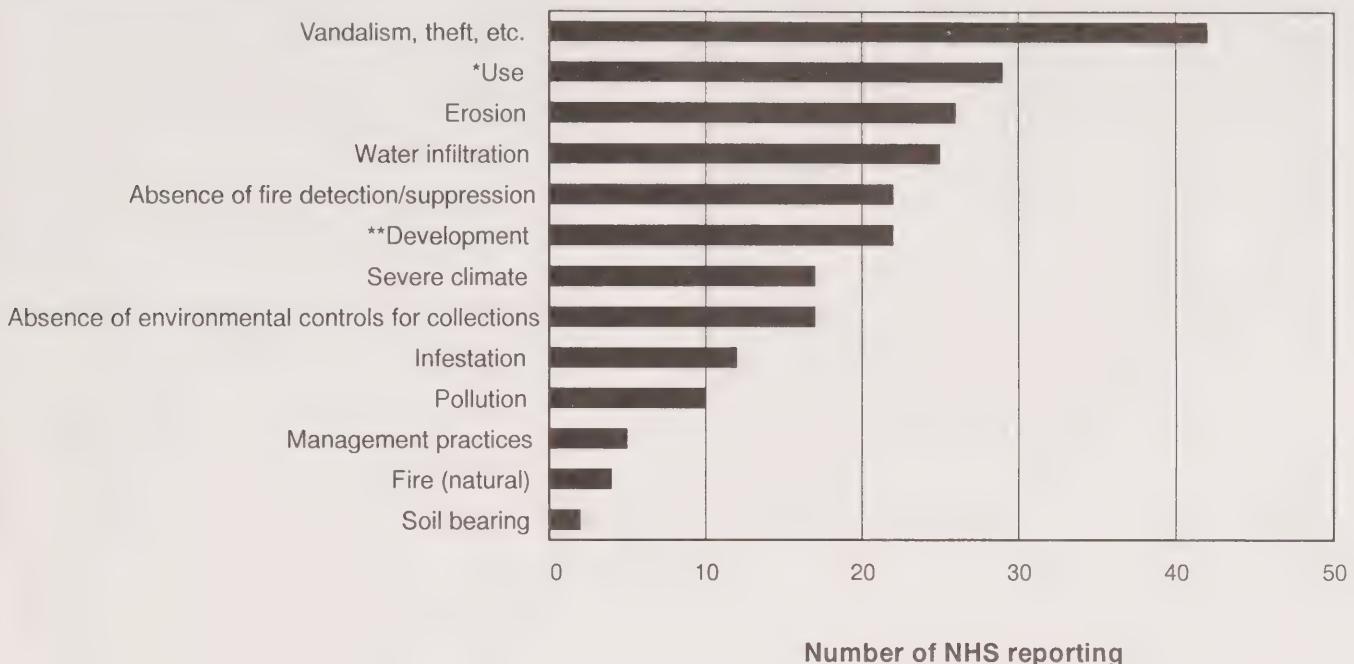
National historic sites face threats from both natural and human sources. And because historic sites are not self-propagating, destruction is catastrophic — the heritage equivalent of extinction.

All national historic sites are affected by natural processes of decay and erosion. In fact, surveys of threats to national historic sites show that natural or environmental threats can be more extensive and destructive than human threats. Yet the impacts of natural threats (if not the threats themselves) can generally be lessened by humans. A failure to do so should, then, be considered a human threat rather than a natural one.

In addition to decay and erosion, **natural or environmental threats** include severe climate, water infiltration, inadequate soil-bearing capacity, infestations of plant or animal life, and naturally occurring fire. **Human threats** cover pollution, development within or outside the site's boundaries, and a broad range of illegal activities (e.g. vandalism and theft). Certain types of use leading to negative impacts (such as trampling of vegetation) also count as a threat, as does the failure to address problems in the condition of resources or deficiencies in the communication of significance.

Based on a comparison of threats identified in the 1990 state-of-the-parks report and information provided for this report, little *overall* change in the

Figure 10
Reported Threats



* refers to adverse impacts (e.g., damage to resources, vegetation, etc.) associated with certain types of public use.

** refers to adverse impacts (e.g., increased traffic pollution, etc.) associated with certain types of development.

range, number and degree of threats has occurred during the last four years. (See Figure 10 for the current situation.)

Erosion remains a reported threat at 28 national historic sites. Two examples follow: The installation of an armour-stone breakwater and protective fill has effectively halted severe erosion and loss of structural elements of the Royal Battery at the Fortress of Louisbourg, but within the fortress area itself, the coastal-erosion threat remains severe. Erosion has accelerated rapidly at Fort Anne (it was not even identified as a threat in 1990), and now threatens the earthen fortifications along the Annapolis River. Interim stabilization is under way.

Thefts were reported at Cape Spear, Sir Wilfrid Laurier in Ville des Laurentides, Fort Langley, and Lowes Mortuary in Dawson, and vandalism was reported at Fort Rodd Hill.

The 1990 report on the state of the parks identified fire as a potential threat at only two national historic sites, and lack of fire protection at two others. Events since 1990 — the destruction of

the 1921 lightkeeper's house at Port au Choix, as well as the administration building at Fort Langley, and, most significantly, serious fire damage to St. Andrews Blockhouse (the sole surviving War of 1812 blockhouse in Canada) — have forced a reconsideration of the adequacy of fire detection and suppression systems at national historic sites administered by Parks Canada, especially since fire was not identified as a threat at any of these three places in the last report.

A survey determined that slightly over half of the flammable heritage structures at our sites have linked fire detection systems, many fewer have fire suppression systems, and about 40% (some 70 structures at 22 sites) have no fire detection and/or suppression systems.

Lack of adequate climate controls to protect collections was reported as a threat at 18 national historic sites in 1990. One site (Carleton Martello Tower) has been removed from this list because it displays reproductions only. Considerable work has been done at the Fortress of Louisbourg, Laurier

House, and the *St. Roch* since the last report to address the problem of inadequate environmental controls, although it remains a threat at Fortress of Louisbourg as well as 14 other sites that reported on it in 1990. One of the biggest challenges related to mitigating the threat posed by inadequate environmental control for collections is to ensure that

heritage building fabric is not damaged in order to provide the desired environmental conditions.

A potential threat to be examined is the cost of managing lands not related to a site's historical significance. A threat would arise if the management of these lands were to compete with achieving commemorative objectives.

PROFILES

This section contains profiles for 2 new national parks and 19 national historic sites not reported on previously. It does not include all the profiles of the

1990 report. The full set of profiles may be republished in the future, should there be substantial overall change to report.

AULAVIK NATIONAL PARK

Purpose

To represent and protect an ecosystem characteristic of the Western Arctic Lowlands natural region.

Established

- Agreement reached on 7 August 1992 between Canada, Northwest Territories (N.W.T.), and Inuvialuit to establish Aulavik National Park.
- Legislation to establish park anticipated by 1995.
- Park being managed and operated co-operatively by Parks Canada and the Inuvialuit.

Location/access

- On northern Banks Island, N.W.T.
- Park's core formed by Thomsen River valley and tributaries.

- Accessible by chartered aircraft from Inuvik (terminus of Dempster Highway) about 800 km southwest of park.
- Sachs Harbour — only community on Banks Island and gateway to park area — located 250 km southwest of park.

Heritage values and features

- 12,200 km² undeveloped wilderness area.
- Deeply cut river canyons and rugged, desert-like badlands.
- Hills and valleys surrounding Thomsen River support approximately $\frac{1}{4}$ of Banks Island's 40,000 muskoxen, one of the highest concentrations in the world.
- Numerous archaeological sites dating to 3,400 years Before Present.



Banks Island Migratory Bird Sanctuary No. 2 is included as a part of the park. This sanctuary extends along the lower reaches of the Thomsen River and protects the moulting habitat of Lesser Snow and Brant Geese.

Condition of resources

- Condition of resources not yet fully documented because park is only recently established.
- Resource inventories and studies will be undertaken over next five years.

Presentation to the public

- Interpretation, communication and extension activities not yet developed.
- Canadian Wildlife Service (CWS) interpretive brochure for Banks Island Migratory Bird Sanctuary No. 2.

Services and facilities

- No park facilities yet developed.
- Management plan will be prepared by 1997 to guide facility development.
- Facilities will be modest in scale, in keeping with the park's wilderness character.
- Main visitor activity expected to be canoeing and rafting trips down Thomsen River, Canada's most northerly navigable river.
- Several unimproved aircraft landing sites.
- Permits will be required for aircraft landing within park.
- Access to migratory bird sanctuary controlled under migratory bird sanctuary regulations.

- Random no-trace camping permitted.
- Park office established in Sachs Harbour in August 1993.

Visitation

- Statistics to be compiled starting in 1994 summer visitor season.

Threats

External - Not researched yet.

Internal - Not researched yet.

Opportunities

To mitigate future threats

- Through co-management practices and visitor activities management.

To enhance park purpose

- Implementation of park establishment agreement, including management planning.
- Activities to protect and manage natural and cultural resources.
- Public awareness promotion.

Partnerships

Volunteer program - N/A

Other co-operative arrangements

- Memorandum of Understanding with CWS regarding management of Banks Island Migratory Bird Sanctuary No. 2.

VUNTUT NATIONAL PARK

Purpose

To represent and protect an ecosystem characteristic of the Northern Yukon Natural Region, including portions of the Old Crow Flats wetlands and surrounding foothills

Established

Vuntut National Park will be formally established through the legislation approving and giving effect to the Vuntut Gwitchin First Nation Land Claim Agreement, which is part of the Council for the Yukon Indians' land claim.

Location/access

- Bounded on north by southern boundary of Ivvavik National Park, on west by Canada-United States (Yukon-Alaska) border, on south and east by north bank of Old Crow River and right bank of Black Fox Creek.
- Remote village of Old Crow, approximately 76 air km south of proposed park, on the north side of

Old Crow River, has year-round scheduled air service.

- Dempster Highway located 161 km south of Old Crow, but no road connects it to community.
- Whitehorse, 684 air km away, is nearest major centre.

Heritage values and features

- 4,345 km² in size.
- Unique landform with vast plain of over 2,000 shallow lakes and ponds, many less than 2 m in depth.
- Important habitat for Porcupine caribou herd, grizzly bear, moose, muskrat, and several fish species.

The wetlands of Old Crow Flats are listed by the Ramsar Convention as internationally important waterfowl habitat. The flats support approximately 300,000 waterfowl during the breeding season and 500,000 for staging in the fall.

Old Crow Flats is one of Canada's most important sources of vertebrate fossils and as such is of unequalled value for paleoecological research.



Artifacts show evidence of very early human habitation and ancient animal species.

Condition of resources

- Considerable archaeological work undertaken in Old Crow Flats area over last 25 years.
- Much archaeological work incomplete or not properly reported to scientific community or Old Crow people.
- Once park is legally established, further work will be required to inventory resources and their condition.

Presentation to the public

- Interpretation and communication activities will be developed to encourage public understanding, appreciation, and enjoyment of park.

Services and facilities

- None yet developed.
- All planning and management of the park to be performed as set out in Vuntut Gwitchin First Nation Final Agreement.

Visitation

- N/A

Threats

External - Not researched yet.

Internal - Not researched yet.

Opportunities

To mitigate threats - N/A

To enhance park purpose - N/A

Partnerships

Volunteer program - N/A

Other co-operative arrangements

- Porcupine Caribou Management Board.
- With management bodies established by the Vuntut Gwitchin First Nation Final Agreement involving the Vuntut Gwitchin Renewable Resource Council, Yukon government representatives, and other federal government departments.

STANLEY PARK NATIONAL HISTORIC SITE

Purpose

To commemorate Stanley Park, which, in its splendid setting and through the relationship between its natural environment and its cultural elements developed over time, epitomizes the large urban park in Canada.

Established

Designated nationally significant 1988.

Location/access

Vancouver, British Columbia.

Heritage values and features

- Combination of natural and cultural elements creates important landscape.
- Seasonally occupied for centuries by the Coast Salish.
- Reserved 1859; park established 1888.
- Huge trees and forest character.
- Important interplay between forest, water, and mountains, and between forested and cleared areas.
- Significant flower gardens, recreational structures, and commemorative statuary.
- Long-established public recreational site.

Condition of resources

- Inherent in park's character as evolving cultural landscape is the dynamic of change. In that context park is generally in good condition.

Presentation to the public

- Municipal plaques erected by the Vancouver Parks Board on history and development of park.
- HSMBC plaque on Prospect Point commemorating the wreck of the *Beaver*.
- Other commemorative plaques and statuary, including statue of Lord Stanley.
- Assemblage of Northwest Coast totem poles.



Lost Lagoon
Tony Stone Images

Services and facilities

- Site open year round.
- Parking.
- Washrooms.
- Food services.
- Playing fields.
- Golf course.
- Tennis courts.
- Pool.
- Aquarium.
- Zoo.

Visitation

- 8 million (estimate).

Threats

- Intensive use of park by large urban population creates pressure on natural and cultural resources.
- Conflicting views of appropriate use of park.
- Recurrent pressures by commercial concessions and interest groups.
- Expansion of Lions Gate Bridge.

Opportunities

- To enhance public awareness that the park is a national historic site.

Partnerships

- Vancouver Parks Board is responsible for maintaining the park.

TWIN FALLS TEA HOUSE NATIONAL HISTORIC SITE

Purpose

To commemorate Twin Falls Tea House as a noteworthy example of the Rustic Design Tradition in Canadian national parks.

Established

Designated nationally significant 1992; licence of occupation.

Location/access

Upper Yoho Valley, Yoho National Park, British Columbia; access by foot and bridle trail.

Heritage values and features

- Built in two stages, pre-1912 and 1923, as part of backcountry tourist trail circuit developed by CPR.
- Illustrates important role of railways in early recreational development within the parks.

- Illustrates rustic log design and craftsmanship of backcountry tourist facilities established in national parks during 1920s, embodied here in the handling of locally procured building materials.

Condition of resources

- Unaltered in form, function, and setting.
- Evidence of decay in log footings, sills, and balcony supports.

Presentation to the public

- Historical role respected and informally interpreted by current long-term leaseholder.

Services and facilities

- Horse tours and hiking during summer and early fall months.
- Refreshments and overnight accommodation available.



Visitation

- To interpret rustic recreational architecture in the national parks.

Threats

- Fire.

Opportunities

- To interpret history of backcountry recreation in Yoho National Park and early role of CPR and commercial tour operators.

Partnerships

KICKING HORSE PASS NATIONAL HISTORIC SITE

Purpose

To commemorate the role of Kicking Horse Pass in the history of Canadian transportation.

Established

Acquired 1886; designated nationally significant 1971.

Location/access

In Yoho National Park on the Trans-Canada Highway.

Heritage values and features

- First recorded use by Palliser Expedition, 1857–60.
- Chosen by the CPR in 1881 as its route across the Rocky Mountains.
- Remains of original CPR roadbed, 1927 highway, and associated features, such as bridges, visible.



Continental Divide marker

Condition of resources

- CPR roadbed and highway remains reasonably stable.

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque.

Services and facilities

- Pull-off on west-bound lane to view plaque.

Visitation

- Unknown.

Threats

- None identified.

Opportunities

Partnerships

SKOKI SKI LODGE NATIONAL HISTORIC SITE

Purpose

To commemorate Skoki Ski Lodge as a noteworthy example of the Rustic Design Tradition in Canadian national parks.

Established

Designated nationally significant 1992; licence of occupation.

Location/access

Skoki Valley, Banff National Park, Alberta; access restricted to foot, horseback, and ski trail.

Heritage values and features

- Built in 1930/1931; additions in 1932, 1935/1936.
- First facility built specifically to accommodate ski-tourists on a commercial basis in Canada, and possibly in North America.
- Close associations with early stages of recreational skiing in Banff National Park.
- Excellent example of traditional log design and construction, using locally procured materials.
- Main lodge and contemporary guest cabins display consistency in design, materials, and construction methods.

The lodge in the late 1930s

Photo by E. Rummel courtesy of D. Mickle



Condition of resources

- Lodge and cabins are maintained in operational condition.
- Site relationship and historical access route remain intact.

Presentation to the public

- No formal interpretation in place.
- Display of historical photos and original guest books.

Services and facilities

- Commercial lodge catering to cross-country skiers in winter months and to horseback tours and hikers in summer and fall.
- Offers traditional backcountry accommodations with minimal modern conveniences.

Visitation

Threats

- Lack of periodic maintenance.
- Possibility of changing historical appearance inadvertently through repair or renovation.

Opportunities

- To interpret formative stages of recreational skiing in the national parks.
- To interpret early back country recreation and accommodation in the national park.

Partnerships

JASPER PARK INFORMATION CENTRE NATIONAL HISTORIC SITE

Purpose

To commemorate Jasper Park Information Centre as a noteworthy example of the Rustic Design Tradition in Canadian national parks.

- Combination of rustic design and construction methods incorporating distinctive fieldstone wall construction, complemented by log, milled timber, and shingle elements.

Established

Designated nationally significant 1992.

Condition of resources

- Building exterior in fair condition; a number of areas need repairs.
- Interior features obscured or altered through successive renovations.
- Grounds in good condition.

Location/access

Jasper Townsite, Jasper National Park, Alberta.

Heritage values and features

- Major early example, 1913/14, of rustic design in the use of natural building materials in the national parks.
- Designed as an institutional landmark that influenced subsequent building practices within Jasper National Park.

Presentation to the public

- Originally built to serve as the superintendent's residence and park administration building; converted into the park information centre in 1972.
- The park's natural and cultural heritage is interpreted, including built heritage and the signif-



icance of the building relative to the town's development.

- Exterior media interpret the architecture of the building.
- Friends of Jasper National Park incorporate the history of the building in their walking tour during the summer.

Services and facilities

- Park reception, orientation, public safety advice, trip planning, permit provision, interpretation, environmental education, advocacy, community relations provided by staff.
- Non-personal media include publications, displays, interactive computer programs, and video presentations.

Visitation

- Approximately 200,000 visitors a year.

Threats

- Physical deterioration.
- Many conflicting demands on its use.

Opportunities

- To interpret the building's influence as a historical and architectural landmark within Jasper and the national park system.

Partnerships

- Friends of Jasper National Park.

ABBOT PASS REFUGE CABIN NATIONAL HISTORIC SITE

Purpose

To commemorate the Abbot Pass Refuge Cabin as a noteworthy example of the Rustic Design Tradition in Canadian national parks.

Established

Acquired 1968; designated nationally significant 1992.

Location/access

On the 2926-m summit of Abbot Pass, on the Great Divide, Banff National Park, Alberta; summer access for mountaineers by foot trail from Lake O'Hara.

Heritage values and features

- Built by CPR construction crews in 1922 at instigation of Swiss guides, for use by climbing expeditions in the park.
- Based on model of Swiss high-altitude shelter cabins.
- Constructed from locally procured stone, with other materials hauled to site by pack horses and by hand.
- Illustrates aspect of rustic architectural policy prescribed for recreational facilities situated in backcountry locations in the national parks.
- Manifestation of the growth of alpine hiking and climbing.



Condition of resources

- Restored by Parks Canada in 1973/1974.
- Maintained for continuing use by hikers and climbers.

Presentation to the public

- No on-site interpretation.
- Appears in all histories of mountaineering in the area and in a documentary movie on a guide.

The cabin in the early 1900s
Glenbow Archives, Calgary

Services and facilities

- Cooking facilities and sleeping accommodation.
- Fly-out barrel privy.

Opportunities

- To interpret history of alpine recreation in the national parks and role of Swiss guides in this activity.

Visitation

- Approximately 700 persons.

Partnerships

- Managed by Alpine Club of Canada.

Threats

- Weathering and age.

FIRST OIL WELL IN WESTERN CANADA NATIONAL HISTORIC SITE

Purpose

To commemorate the establishment of the first commercially productive oil well in western Canada.

Established

Designated nationally significant 1965.

Location/access

Waterton Lakes National Park, Alberta; beside Cameron Lake Road.

Heritage values and features

- Seepages of oil long known to Aboriginal peoples.
- First used by Europeans when John George "Kootenai" Brown used the petroleum for lubrication.
- First oil well brought into production by Rocky Mountain Development Co. in 1902.
- Because of isolation from markets and limited production the company ceased operating in 1907.
- Development encouraged further exploration, which eventually led to the discovery of the Turner Valley field.
- Vestiges of "Oil City" and other attempts to develop the oil field are hidden in the surrounding brush.



Condition of resources

- Remains of well-head in good condition.

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque mounted on a special monument erected on top of well-head.
- Interpretive panels at site.

Services and facilities

- None.

Visitation

- Unknown.

Threats

- None identified.

Opportunities

- To make people more aware of the site.

Partnerships

Co-operating associations

- Waterton Natural History Association has an oil-drilling exhibit in its museum in Waterton.

ATHABASCA PASS NATIONAL HISTORIC SITE

Purpose

To commemorate the role of the Athabasca Pass as a transportation route in the Canadian fur trade.

Established

Acquired 1907; designated nationally significant 1971.

Location/access

In Jasper National Park, on Alberta/British Columbia border, 49 km southwest of Highway 93; accessed by backcountry hiker/horse trail.

Heritage values and features

- In 1811 David Thompson, guided by Thomas the Iroquois, was the first European to use the pass.

- For many years the pass was an important route in the fur trade with Oregon.
- The lake at the summit was named “The Committee’s Punch Bowl” in honour of the governing committee of the Hudson’s Bay Company.

Condition of resources

- Undisturbed.

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque.
- Off-site media including interpretative panel at viewpoint on Highway 93.



Services and facilities

- Primitive campsite adjacent to pass.

Visitation

- 94 visitors a year (average).

Threats

- Scheduled logging operations on British Columbia side of the pass.

Opportunities

- Increased backcountry visitation due to improved trails on British Columbia side of the pass.

Partnerships

SULPHUR MOUNTAIN COSMIC RAY STATION

NATIONAL HISTORIC SITE

Purpose

To commemorate this site as part of the Canadian contribution to the International Geophysical Year (IGY), 1957/58.

Established

Designated nationally significant in 1982.

Location/access

On top of Sulphur Mountain in Banff National Park; gondola and hiking trail access.

Heritage values and features

- Part of a world-wide system of cosmic ray monitoring stations.
- The site of a high-altitude laboratory and monitoring station, operated by the National Research Council of Canada 1956–63, with a cubical meson telescope, a neutron monitor, and a pulsed ion chamber on site.
- By far the most important station in Canada; during the IGY it made several major contributions to the understanding of cosmic rays.
- Operated 1963–78 by the University of Alberta (Calgary) as a neutron-monitoring station with a prototype neutron monitor developed in Canada.
- Original equipment removed in 1964/65; neutron monitor removed in 1978.
- Station demolished in 1981.
- Nearby Sulphur Mountain Weather Station, built 1903, was a meteorological observatory until 1930s. It is interpreted as a weather station and has been designated a Federal Heritage Building.

Condition of resources

- Extant concrete foundations in good condition.
- Weather Station in good condition.

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque. A duplicate was erected at the University of Calgary.
- Planned interpretive development in conjunction with the restoration of the Sulphur Mountain Weather Station.

Services and facilities

- Trail from upper terminal of the Sulphur Mountain gondola to site.

Visitation

- 150,000 per annum (estimate).

Threats

- None identified.

Opportunities

- To work with the gondola operator to improve the trail all the way to the historic site and weather station.

Partnerships

- An agreement exists with the gondola lift operator to maintain the trail.

BAR U RANCH NATIONAL HISTORIC SITE

Purpose

To commemorate the ranching industry in Canada and the Bar U Ranch.

Established

Designated nationally significant 1989; acquired 1991.

Location/access

16 km south of Longview, Alberta; 100 km south of Calgary.

Heritage values and features

- An unbroken association with the major figures and developments in the ranching industry from 1882 to 1950.
- Once the site of a local North-West Mounted Police detachment and the Pekisko Post Office.
- Site includes 35 buildings and structures that illustrate successive stages of ranch development; most date from before 1940.
- Site is rich in cultural landscape features, such as the original road pattern, primary and secondary

paths, traditional crossing points, corral fencing, and early tree plantings.

Condition of resources

- Most buildings have been stabilized; some of the early buildings require further stabilization to prevent or arrest structural deterioration.
- Cultural landscape is in good condition.

Presentation to the public

- Visitor orientation centre scheduled to open in 1995.
- Limited access to the site until 1997; special events and prebooked tours will be offered.

Services and facilities

Visitation

- Not applicable.

Threats

- None identified.



Opportunities

- To encourage the co-operation of non-profit organizations in the operation and management of the site.
- To develop extensive outreach/community relations programs.
- To present the experience of a working ranch to the public.
- To contribute to community revitalization and offer opportunities for regional economic development.

Partnerships

Co-operating association

- Friends of the Bar U Historic Ranch Association, established August 1992, assist in the planning

and design of the proposed visitor orientation centre and the future development of the site.

Other co-operative arrangements

- Memorandum of Understanding with the Museum of the Highwood, High River, Alberta.
- Agreement with the University of Calgary to carry out archaeological excavations and to co-ordinate a public archaeological program for volunteers.
- Memorandum of Understanding with the Glenbow Museum, Calgary, Alberta.
- Alberta Fish and Wildlife Services; co-operate with Rangeland and Riparian Study.

FRENCHMAN BUTTE NATIONAL HISTORIC SITE

Purpose

To commemorate a site associated with an 1885 engagement between a party of Crees, led by Big Bear, and forces of the Dominion government which were pursuing them after the Frog Lake massacre and the attack on Fort Pitt.

Established

Designated nationally significant 1954; acquired 1961.

Location

Frenchman Butte, Saskatchewan.

Heritage values and features

- Site of a battle of the Northwest Rebellion between the Cree, led by Big Bear, and forces of the Federal government, commanded by Major-General Thomas Bland Strange.

Condition of resources

- The 18 acres of the site are fenced.
- Rifle pits are eroding.
- Much of site is overgrown with mature poplar, much of which has been damaged by insects; there are many dead trees.
- Deadfalls obscure features; local residents and Parks Canada staff have removed some.

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque mounted on a boulder.
- Local historians interpret the site to public upon request.

Services and facilities

- Gravelled parking lot, one picnic table, and privy facilities.



Visitation

- 675 in 1992/93 (estimate).
- 537 in 1993/94 (estimate).

Threats

- Isolation of site leaves it vulnerable to pot hunting.
- Erosion of rifle pits and trails.
- Uncontrolled public access damaging the rifle pits.
- Danger from falling dead trees on windy days.

Opportunities

- To join with provincial authorities in marketing the site, along with Steele Narrows Provincial

Historic Site, Fort Pitt Provincial Historic Site, and Frog Lake NHS, to people interested in exploring “back roads of the Northwest Rebellion.”

Partnerships

Co-operative arrangements

- North West Tourism Development Group, Lloydminster Tourism and Convention Authority, Saskatchewan Economic Development and Tourism, and Alberta Parks.

FORT LIVINGSTONE NATIONAL HISTORIC SITE

Purpose

To commemorate Fort Livingstone, the original headquarters of the North-West Mounted Police, the first post built specifically for the Force, and the site of the temporary government of the North-West Territories 1876–1878.

Established

Designated nationally significant 1923; acquired 1927.

Location

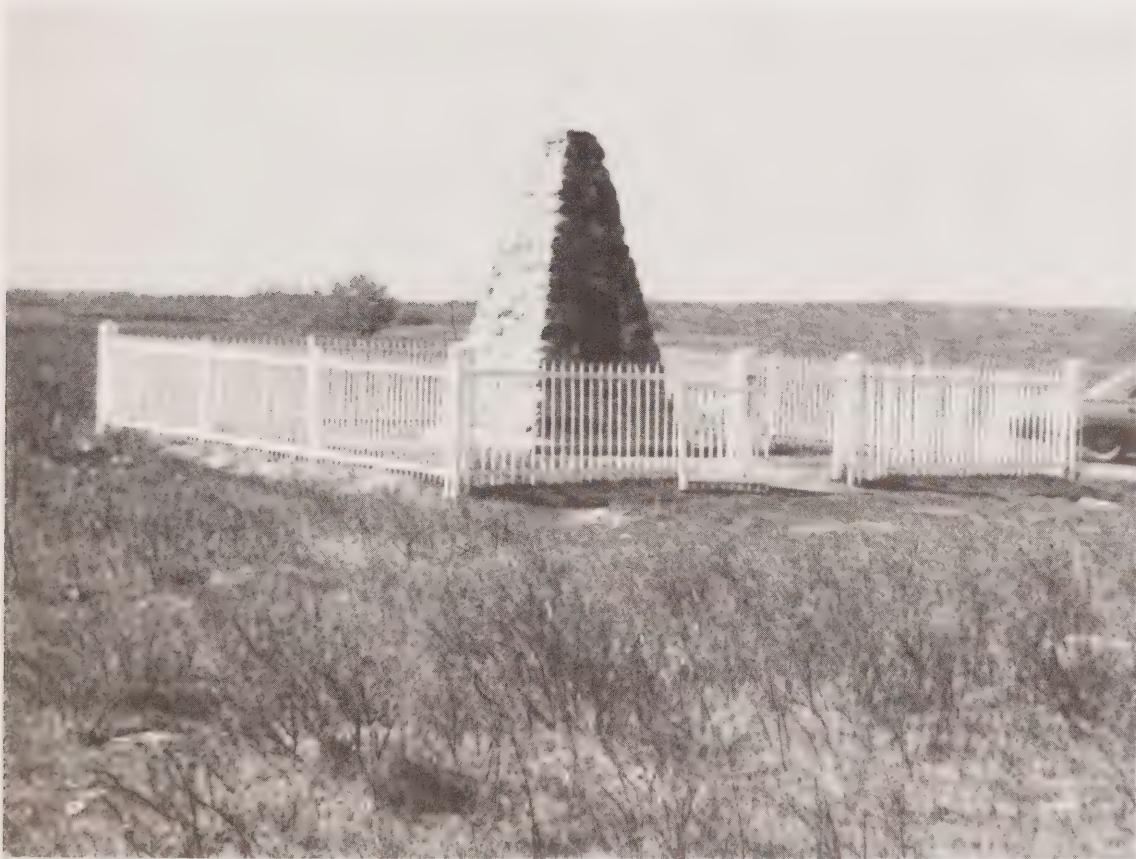
On the right bank of Snake Creek, south of Swan River, 12 km from Pelly, Saskatchewan.

Heritage values and features

- The site of the original headquarters of the North-West Mounted Police 1874–1876.
- Site of the temporary government of the North-West Territories 1876–1878.
- Site of the first session of the Council of the North-West Territories in 1877.
- Occupied from 1874 to 1884.
- Destroyed by a prairie fire in 1884.
- Probably archaeological remains.

Condition of resources

- The 48.4 ha of the site are unfenced and being grazed.
- Archaeological resources in stable condition.



Presentation to the public

- Two Historic Sites and Monument Board of Canada plaques (commemorating Fort Livingstone and the Seat of the Territorial Government 1876–1878) mounted on a cairn surrounded by a metal fence.

Services and facilities

- None.

Visitation

- Unknown.

Threats

- Grazing presents a minor threat to archaeological remains.
- Vandalism, including unauthorized digging.

Opportunities

- To work with the town of Pelly, which has indicated interest, to develop the site.

Partnerships

RIDING MOUNTAIN PARK EAST GATE REGISTRATION COMPLEX NATIONAL HISTORIC SITE

Purpose

To commemorate the East Gate Registration Complex as a noteworthy example of the Rustic Design Tradition in Canadian national parks.

Established

Built 1933; designated nationally significant 1992.

Location/access

Norgate Road entrance, Riding Mountain National Park, Manitoba.

Heritage values and features

- Site consists of a portal-style entrance building and two nearby cottages that accommodated a park warden and entrance gate keeper respectively.

- Built in 1933 as part of Depression relief programs that coincided with the early development of Riding Mountain National Park.
- Rare surviving example of park entrance complex associated with early stages of automobile tourism.
- Illustrates distinctive rustic architectural motif prescribed by National Parks Branch during 1920s and 1930s.

Condition of resources

- Entrance portal restored by Parks Canada in 1991.
- Warden's cottage currently occupied; rotted logs on west and north walls; plans to repair and protect structure being completed; to be done within two years.
- Gatekeeper's cottage unoccupied for prolonged period; foundation in need of repair.



Presentation to the public

- No interpretative program currently in place.

Services and facilities

Visitation

Threats

- Lack of maintenance for gatekeeper's cottage.

Opportunities

- To interpret the buildings as components of cultural history of Riding Mountain National Park.
- To interpret themes of automobile tourism and rustic architecture in the national parks.

BEAD HILL NATIONAL HISTORIC SITE

Purpose

To commemorate the only known remaining and archaeologically intact 17th-century Seneca site in Canada.

Established

Designated nationally significant 1991; acquired 1993.

Location/access

Lower Rouge River Valley, Scarborough, Ontario, within boundaries of proposed Rouge River Valley Park.

Heritage values and features

- One of only three historic Seneca sites known in Ontario and the only one thought to be archaeologically intact.
- Includes remains of a 17th-century Seneca village and an associated burial area.
- Includes a possible Archaic Period campsite, approximately 3,000 years old.

Condition of resources

- Site is in good condition generally.
- Two-thirds of site has been shallowly ploughed, but is now overgrown with grass, sumac, and poplar.
- One-third of site was a paddock, but is relatively undisturbed.

- Hillside midden is in excellent condition because it is protected by forest cover.
- Burial site near stables has been subjected to repeated but intermittent sand removal.

Presentation to the public

- None.

Services and facilities

- None.

Visitation

- No visitation as a historic site.

Threats

- None identified; public knowledge of site is limited.

Opportunities

- To increase knowledge of the history of Native peoples in Canada.
- To work closely with First Nations in preservation and presentation of the site.

Partnerships

- Land acquired by governments of Canada and Ontario to be turned over to an agency responsible for managing the Rouge River Valley Park.

SAINT-LOUIS MISSION NATIONAL HISTORIC SITE

Purpose

To commemorate the Huron village, called Saint-Louis by Jean de Brébeuf and Gabriel Lalemant, who were conducting a mission there, which was destroyed by an Iroquois attack on 16 March 1649.

Established

Designated nationally significant 1920; acquired 1922.

Location/access

Near Victoria Harbour, Ontario.

Heritage values and features

- Site of a village of the Ataronchronon tribe of the Wendat, or Huron, Confederacy.
- Site where Fathers Jean de Brébeuf and Gabriel Lalemant were conducting a mission.
- Attacked and destroyed by Iroquois, 16 March 1649.

- Fathers Brébeuf and Lalemant were martyred at nearby Saint-Ignace.

Condition of resources

Presentation to the public

- Historic Sites and Monuments Board of Canada plaque mounted on a cairn.

Services and facilities

- Parking.

Visitation

- Unknown.

Threats

Opportunities

Partnerships

GLENGARRY CAIRN NATIONAL HISTORIC SITE

Purpose

To commemorate a monument to the services of Sir John Colborne and the militias of Glengarry County who served during the Rebellion of 1837 and the subsequent border disturbances in 1838–39.

Established

Designated nationally significant 1921; acquired 1922.

Location/access

The Cairn, a small island in Lake St. Francis opposite South Lancaster, Ontario.

Heritage values and features

- A conical stone cairn with a stairway, surmounted by a cannon barrel, erected *circa* 1840.
- Erected by Glengarrians at the instigation of Lieutenant Colonel Lewis Carmichael to pay tribute to Sir John Colborne and the services of the Glengarry militias during the Rebellion of 1837 and the subsequent border disturbances.

Condition of resources

- The cairn has developed serious cracks and is in need of repointing. Some stones are coming away from the surface of the cairn.



Presentation to the public

- A plaque attached in 1905 tells the story of the cairn's construction.

Services and facilities

- Pit toilet, floating dock, picnic tables, and fire-places.
- Some facilities are in need of repair.

Visitation

- Unknown; used by boaters for picnicking; inaccessible to general public.

Threats

- Vandalism.

Opportunities

Partnerships

MANOIR PAPINEAU NATIONAL HISTORIC SITE

Purpose

To commemorate Manoir Papineau, a mid-19th-century country manor house, whose architecture reflected the social aspirations, tastes, and state of mind of its owner, Louis-Joseph Papineau.

Established

Designated nationally significant 1986; acquired with part of the former seigneurie, by lease, 1993.

Location/access

Montebello, Quebec.

Heritage values and features

- Begun in 1846.
- Unique design, combining typical 19th-century Quebec house with octagonal corner towers inspired by *manoirs* of northern France.
- Summer home of Louis-Joseph Papineau, 1854–1871, a major figure in Canadian history.
- Northwest tower housed his private library, one of the most important private collections of the period.
- Manor house contains several pieces of furniture and decorations dating from Papineau's time.
- He developed his lands as a model seigneurial estate as a defence against cultural assimilation.



- Building constructed by Papineau's son to house his father's art collection and travel mementoes was converted into an Anglican chapel by the Seigniory Club after it bought the property.
- The granary was used as a studio by the painter Napoléon Bourassa (Papineau's son-in-law and father of Henri Bourassa) from 1858 to 1871. Frescoes and paintings decorate the walls.
- Nearby teahouse, in the Italian style, gives a good view of the river.
- Large wooded park with numerous paths and a fish stream along with the remains of landscaping put in by the Seigniory Club in the 1930s.
- The funeral chapel where Papineau and several of his relatives are buried is maintained by Heritage Canada and may be visited by the public.

Condition of resources

- In general, in good condition.
- Walls of manor house need repointing.
- Roof of the granary must be replaced.

Presentation to the public

- Manor and chapel open to the public May to October.
- Guide-interpreters are available.

Services and facilities

- A temporary path has been established between the tourist reception centre of Montebello and the driveway to the manor house.

- A service is held in the Anglican chapel each Sunday.

Visitation

- 20,000 visitors a year.

Threats

- Water leakage in manor house and granary.
- Deterioration of furniture and interior decoration in the manor house.
- Wood rot in the teahouse.
- Deterioration of the Bourassa frescoes in the granary.

Opportunities

- Building a parking lot on the grounds of the Corporation de la Gare de Montebello with permanent access to the driveway of the seigneurie.
- Improving the driveway of the seigneurie.

Partnerships

- Agreement with the Corporation de la Gare de Montebello to provide visitor services in their reception centre.
- A consultative committee with representatives of local organizations and a representative of Quebec has been set up to integrate the new site harmoniously into the regional network.

DALVAY-BY-THE-SEA HOTEL NATIONAL HISTORIC SITE

Purpose

To commemorate a fine example of a summer house in the Queen Anne Revival style.

Established

Acquired 1937; designated nationally significant 1990.

Location/access

Dalvay Beach, Prince Edward Island National Park (east end); entrance from Gulf Shore Parkway.

Heritage values and features

- Constructed 1896–1899.
- Picturesque exterior superbly embodying the Queen Anne Revival style in irregular massing,

steep roofs with intersecting ridges, decorated gables and dormers, bay windows, half-timbering, wide verandah on three sides.

- Contrasting textures of sandstone, clapboarding, stucco, and shaped shingles characteristic of Queen Anne Revival.
- Central hall with large fireplace, wood panelling, and second-floor gallery.
- Expansive lakeside lawn and paths leading to the beach and gulf.
- Until 1915, summer residence of the wealthy Cincinnati family of Alexander McDonald, president of Standard Oil of Kentucky.
- About 40 small McDonald-era artifacts.



Condition of resources

- Basically good, due to regular maintenance, periodic upgrading, and management as a first-class hotel.

Presentation to the public

- Brochure available from hotel; a brief building history to appear on the 1994 dining room menu.
- Known to many as the White Sands Hotel in the TV series "Road to Avonlea."
- Prominent in provincial tourist literature, including *The Island Magazine*.

Services and facilities

- Operated as a hotel by a private lessee, late June to early September; public rooms (including dining) open to all.
- Parking lot, walkways and pathways with benches, tennis court, children's play area, gift shop (in one of the two cottages).

Visitation

- 4,348 registered guests in summer 1993; many times that number in casual visitors.

Opportunities

- Dramatic vignettes to relive summer visits of Alexander McDonald and family.
- Linkage with provincially sponsored tours and promotions.
- Inclusion in architectural tours of P.E.I.
- Highlighting in books and films on Canadian architecture.
- Linkage to other national historic sites in the Queen Anne Revival style.

Threats

Partnerships

- Long-term lease with private operator (expires 2032).

RYAN PREMISES NATIONAL HISTORIC SITE

Purpose

To commemorate the Atlantic fishery in all its manifestations, its role in the history of Newfoundland, and the Ryan Premises, a site that combines thematic associations with the industry and extant resources and is located in a community noted for the richness of its fisheries-related resources.

Established

Designated nationally significant 1987; acquired 1991.

Location/access

Bonavista, Newfoundland.

Heritage values and features

- One of the last surviving examples of a large-scale 19th-century outport mercantile complex.
- Surviving buildings include a retail store, a fish store, a salt store, the proprietor's house, and a carriage house.
- The proprietor's house dates from 1860; only the salt store and carriage shed are 20th century.

Condition of resources

- In good condition.
- In 1992, repairs undertaken to prevent deterioration.



- In summer of 1994 stabilization work scheduled to begin.

Presentation to the public

- Not open to the public.
- Partial opening of site planned to coincide with John Cabot 500th Anniversary Celebrations in 1997.

Visitation

Threats

- None identified.

Opportunities

Partnerships

Services and facilities

APPENDICES

APPENDIX A: CO-OPERATIVE PROGRAMS

Parks Canada has a mandate to commemorate, protect, and present nationally significant heritage areas. National parks, national marine conservation areas, national historic sites and historic canals are at the core of this responsibility. But they represent only part of Canada's national heritage. Other national and international activities and co-operative program elements also play an important role.

WORLD HERITAGE CONVENTION

Parks Canada represents the federal government on the World Heritage Committee, which administers UNESCO's Convention on the Protection of the World Cultural and Natural Heritage. Through this convention, the outstanding global value of 411 sites in 95 countries around the world has been recognized. Ten* of these sites are in Canada:

Site	Designated
Nahanni National Park Reserve	1978
Kluane National Park Reserve	1979
Wood Buffalo National Park	1983
Anthony Island	1981
Rocky Mountains	1984/1990
Dinosaur Provincial Park	1979
Québec City	1985
Gros Morne National Park	1987
L'Anse aux Meadows National Historic Site	1978
Head-Smashed-In Bison Jump	1981

BIOSPHERE RESERVES PROGRAM

The UNESCO Biosphere Reserves Program was created over 20 years ago to protect biodiversity and encourage practical sustainable development, with strong local participation. Important ecosystems are designated through the program, and agencies, private concerns, and local populations work to-

gether on a variety of activities such as research, monitoring, education, training, and management co-ordination. Well over 300 biosphere reserves exist around the world.

National parks serve as core areas for three of Canada's six biosphere reserves:

Biosphere reserve designated
Waterton Lakes National Park 1979
Riding Mountain National Park 1986
Bruce Peninsula National Park 1990

In 1994, Parks Canada commissioned a study to determine the feasibility of establishing a national secretariat for Canada's biosphere reserves. If such a secretariat is established under a multipartnership arrangement, it would improve the interconnection of current and future biosphere reserves in this country. It would also address Parks Canada objectives for ecosystem-based management and research, heritage awareness, protected areas networking, international co-operation, and global monitoring.

THE CANADIAN HERITAGE RIVERS SYSTEM

The Canadian Heritage Rivers System was established on 18 January 1984 as a federal-provincial/territorial co-operative program to give national recognition to Canada's important rivers. This system is administered by the Canadian Heritage Rivers Board, with members representing the federal, provincial, and territorial parks administrations. When British Columbia and Alberta joined the system in 1993-94, it became a truly Canada-wide system.

To receive the Canadian Heritage River designation, a river must

- be an exceptional example of natural heritage,
- have played a significant role in Canadian history, and/or

* As of March 31, 1994.

Rivers in the Canadian Heritage Rivers System



* Nomination accepted (not yet designated).

Canadian Heritage Rivers System

Designated rivers

River	Province/Territory (Park ¹)	Designation date	Length
French	Ontario (French River P.P.)	Feb. 1986	110 km
Alsek	Yukon (Kluane N.P. Reserve)	Feb. 1986	90 km
S. Nahanni	Northwest Territories (Nahanni N.P. Reserve)	Jan. 1987	300 km
Clearwater	Saskatchewan (Clearwater River P.P.)	June 1987	187 km
Bloodvein ³	Manitoba (Atikaki P.P.)	June 1987	200 km
Mattawa	Ontario (Mattawa River P.P. and Samuel de Champlain P.P.)	Jan. 1988	33 km
Athabasca	Alberta (Jasper N.P.)	Jan. 1989	168 km
N. Saskatchewan	Alberta (Banff N.P.)	Jan. 1989	49 km
Kicking Horse	British Columbia (Yoho N.P.)	Jan. 1989	67 km
Kazan	Northwest Territories	July 1990	615 km
Thelon	Northwest Territories	July 1990	545 km
St. Croix	New Brunswick	Jan. 1991	185 km
Yukon (30 Mile)	Yukon	Jan. 1991	48 km
Seal	Manitoba	June 1992	260 km
Soper ²	Northwest Territories	June 1992	263 km
Arctic Red	Northwest Territories	Sept. 1993	450 km
Grand ²	Ontario	Jan. 1994	627 km
Total			4197 km

Nominated rivers

River	Province/Territory (Park ¹)	Anticipated designation date	Length
Jacques-Cartier	Quebec (Jacques-Cartier P.P.)	Jan. 1995	128 km
Main	Newfoundland	Jan. 1995	57 km
Missinaibi	Ontario (Missinaibi P.P.)	Jan. 1995	426 km
Margaree	Nova Scotia	Jan. 1995	120 km
Bloodvein ³	Ontario (Woodland Caribou P.P.)	June 1995	106 km
Bay du Nord	Newfoundland (Bay du Nord Wilderness Reserve)	June 1995	75 km
Bonnet Plume	Yukon	Jan. 1996	350 km
Shelburne	Nova Scotia	Jan. 1996	53 km
Boundary Waters	Ontario (La Verendrye/Quetico P.P./Middle Falls)	June 1996	250 km
Churchill	Saskatchewan	Jan. 1997	487 km
Hillsborough	Prince Edward Island	Jan. 1997	45 km
Total			2097 km

¹ P.P. denotes provincial park; N.P. denotes national park.

² Length of main stem of river, includes major tributaries.

³ Bloodvein River has been nominated, in two sections, by Manitoba and Ontario.

- offer outstanding opportunities for recreation and education.

Once a river has been designated, it is managed so that its distinctive value is conserved while public use and enjoyment are enhanced.

As of March 31, 1994, sections of 27 rivers, totalling nearly 6,300 km in length, had been nominated. Seventeen of these rivers have received the Canadian Heritage River designation, meaning that management plans on how their heritage values will be preserved have been submitted to the Board.

FEDERAL HERITAGE BUILDINGS

The Minister of Canadian Heritage is responsible for designating buildings owned by the federal government and that meet the criteria for heritage designation. The purpose of the designation is to ensure that federal government departments and agencies take appropriate steps to protect the heritage character of these buildings, which are often

community landmarks. The minister is advised by an interdepartmental committee chaired by Parks Canada.

Since the early 1980s, when the program was introduced, 995 buildings have been designated. The table shows the progress made since 1990.

HERITAGE RAILWAY STATIONS

In 1988, members of the House of Commons unanimously passed the Heritage Railway Stations Protection Act. It was a rare display of unanimity, reflecting the importance that Canadians attach to railway stations as part of the national heritage.

The Minister of Canadian Heritage is responsible for designating stations that warrant protection under the Act and for recommending whether changes proposed to those stations should be approved.

The following table shows the number of railway stations designated by the end of March 1994.

Federal Buildings

Years	Pre-1990	1990-91	1991-92	1992-93	1993-94
Buildings evaluated	1596	728	708	823	380
Designated heritage	470	106	198	84	137

Heritage Railway Stations

Years	Pre-1990	1990-91	1991-92	1992-93	1993-94
Stations evaluated	13	13	56	65	69
Designated heritage	12	9	41	40	35

APPENDIX B

STATUS OF PARK MANAGEMENT PLANNING

(31 MARCH 1994)

National park	Approved	Current status
Newfoundland		
Gros Morne	1984	under review
Terra Nova	1987	under review
New Brunswick		
Fundy	1991	-
Kouchibouguac	1993	-
Nova Scotia		
Cape Breton Highlands	1994	-
Kejimkujik	1978	under review
Prince Edward Island		
Prince Edward Island	1981	under review
Quebec		
Forillon	1988	-
La Mauricie	1992	-
Mingan Archipelago	1992	-
Saguenay	IMG 1990	MP — final draft
Ontario		
Bruce Peninsula	IMG 1988	MP in progress
Fathom Five	IMG 1988	-
Georgian Bay Islands	IMG 1985	MP — final draft
Point Pelee	1982	under review
Pukaskwa	1982	under review
St. Lawrence Islands	1986	under review
Manitoba		
Riding Mountain	1987	under review
Saskatchewan		
Grasslands	IMG 1991	-
Prince Albert	1987	under review

MP: Management Plan

IMG: Interim Management Guidelines

National park	Approved	Current status
Alberta		
Banff	1988	under review
Elk Island	1978	under review
Jasper	1988	under review
Waterton Lakes	1994	-
British Columbia		
Glacier	1989	under review
Kootenay	1988	under review
Mount Revelstoke	1989	under review
Pacific Rim	IMG 1981	under review
Gwaii Haanas	-	MP in progress
Yoho	1988	under review
Northwest Territories		
Auyuittuq	IMG 1982	MP — final draft
Aulavik	-	IMG in progress
Ellesmere Island	IMG 1988	MP — final draft
Nahanni	1987	MP — final draft
Wood Buffalo	1987	under review
Yukon		
Kluane	1990	-
Ivvavik	IMG 1988	MP — final draft
Vuntut	Planning program has not started yet.	

APPENDIX C

STATUS OF ENVIRONMENTAL ASSESSMENT AND REVIEW PROCESS

Protecting ecological integrity means following the principles put forward by the Environmental Assessment and Review Process (EARP) and by associated policies and procedures. Since 1979, Parks Canada has been involved in numerous public reviews of development proposals. Noticeable efforts have been made to assess the potential impacts of proposed activities and developments.

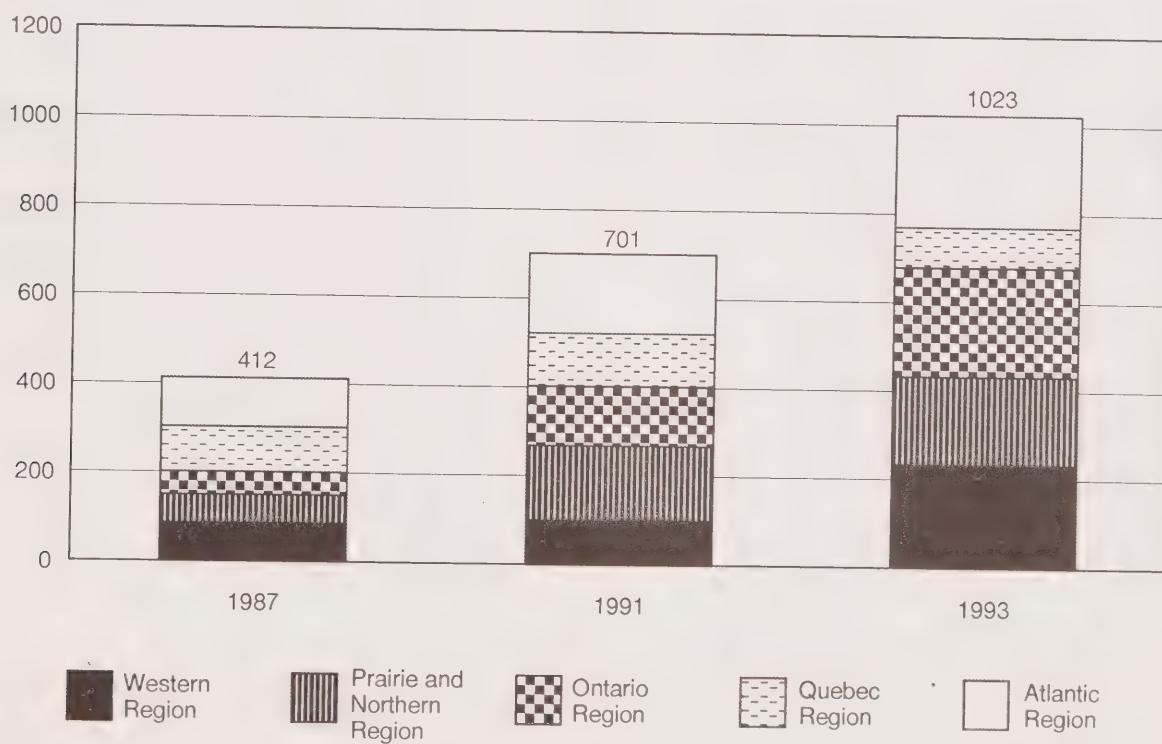
An environmental assessment review panel, appointed by the federal and Quebec environment ministers, is currently assessing the Lachine Canal decontamination project. The joint panel released the Environmental Impact Statement in December, 1993.

During consultations, 21 review participants provided written comments on the EIS. The joint panel is analysing the public comments and is expected to request more information before completing its report.

In 1994, Parks Canada initiated a cumulative impact study of existing and proposed developments in the Bow Valley corridor of Banff National Park. This study will provide information essential to developing an ecosystem management strategy for the park. The experience gained from this initiative will benefit other national parks in the system.

Parks Canada Environmental Assessment Review Process Registry National Totals for 1987, 1991, and 1993

Number of projects



Statistical Summary: 1993

National totals

FEARO code	No. of projects	Percent
0	118	11.5
1	0	0
2	513	50.2
3	378	37.0
4	6	0.6
5	1	0.1
6	1	0.1
7	2	0.2
8	0	0
9	4	0.4
10	0	0

Regional totals

Region	Total no. of projects	Code 0	%	Code 2	%	Code 3	%	Code 4	%	Code 5	%	Code 6	%	Code 7	%	Code 9	%
Atlantic	253	2	0.8	138	54.6	113	44.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Quebec	91	21	23.1	23	25.3	45	49.5	1	1.1	0	0.0	1	1.1	0	0.0	0	0.0
Ontario	247	53	21.5	154	62.4	37	15.0	0	0.0	0	0.0	0	0.0	0	0.0	3	1.2
Prairie	199	5	2.5	134	67.3	56	28.1	3	1.5	1	0.5	0	0.0	0	0.0	0	0.0
Western	233	37	15.9	64	27.5	127	54.5	2	0.8	0	0.0	0	0.0	2	0.8	1	0.4

Federal Environmental Assessment Review Office (FEARO) screening codes:

- 0 Initial assessment starting; no decision yet.
- 1 Automatically exclude proposal from study as a type that would not produce any adverse environmental effects (**not** listed in this register).
- 2 Proceed with proposal because there are no significant environmental effects.
- 3 Proceed with proposal because the potentially adverse impacts may be mitigated with known technology.
- 4 Assess the proposal in greater detail (Initial Environmental Evaluation - IEE) because the adverse effects that might be caused by the proposal are unknown.
- 5 Give the proposal further study (IEE) because the ability to mitigate adverse effects is unknown.
- 6 Refer the proposal to the Minister of the Environment for a public review by a panel because the potential adverse impacts are significant.
- 7 Refer the proposal to the Minister of the Environment for a public review by a panel because the public concern about it is such that a review is desirable.
- 8 Automatically refer the proposal to the Minister of the Environment for a public review as a type that potentially could produce significant environmental effects.
- 9 Either modify the proposal and rescreen it or abandon it because the impacts are unacceptable.
- 10 Production of an Environmental Impact Statement at request of the Canadian International Development Agency (CIDA) because potential adverse impacts are significant.

Total number of projects subjected to the Environmental Assessment Review Process (EARP): 1023

This registry consists of projects reported by Parks Canada's five administrative regions. Future reports will reflect the new six-region framework.

APPENDIX D

FOLLOW-UP ITEMS FROM THE 1990 REPORT

PROGRESS ON THE PROTECTED AREAS INITIATIVE

Parks Canada has been instrumental in encouraging others to join in working toward the goal of protecting examples of Canada's landscape.

In November 1992 the federal government hosted an unprecedented meeting to bring together Canada's federal and provincial/territorial ministers of parks, wildlife, environment, and forestry, as well as representatives of Canada's four national Aboriginal organizations. At this meeting, all jurisdictions endorsed **The Statement of Commitment to Complete Canada's Networks of Protected Areas**.

By signing this statement, governments agree to make every effort to

- complete networks of protected areas representative of Canada's land-based natural regions by the year 2000;
- accelerate the protection of Canada's marine natural regions and its critical wildlife habitat.

This is the first such statement of national political will on behalf of protected areas in Canada.

UPDATE ON NATIONAL ECONOMIC IMPACT DATA

The update of the National Economic Impact Statement (1985 study) was postponed until the remaining regional/provincial-level economic impact studies were completed.

Preliminary figures suggest that visitor and Parks Canada annual expenditures contribute approximately \$1.25 billion to GDP (Gross Domestic Product — value added) and support 30,000 person-years of employment.

Parks Canada and visitor spending is especially significant to the remote and economically disadvantaged areas where parks and historic sites are

often located. Parks Canada helps diversify the economies of these remote regions and contributes to the stability of incomes and employment.

Parks Canada also contributes positively to the nation's balance of payments by attracting international visitors. Almost 24% of all park, site, and canal visitors come from other countries. These visitors spend nearly \$275 million annually in Canada.

FIRE MANAGEMENT

Fire management is more than reducing the threat of forest fires. Parks Canada is developing and applying a comprehensive approach to managing fires to protect ecological integrity.

Since deglaciation, fire has governed the structure, composition, and dynamics of North American vegetation and wildlife. Charred stumps, fire-scarred trees, and charcoal in soil and lake beds — all are evidence of widespread and frequent fire.

Over time, species adapted to fire to the point that they now depend on it (e.g. fire-induced seed release, seed-bed preparation by fire, shade intolerance of some seedlings, prolific vegetative regeneration following fire). Fire is, in short, essential to the ecological integrity of many park ecosystems.

Fire prevention and suppression activities in fire-dependent ecosystems has profoundly altered some national park ecosystems. To rectify this situation and to maintain healthy ecosystems, Parks Canada manages fires — both setting them and controlling them. Control is an important element. Without it, both planned and naturally occurring fire could threaten public safety and adjacent privately owned lands.

Active fire management programs involving prescribed burns are now in place in Banff, Jasper, Elk Island, Wood Buffalo, Nahanni, Waterton Lakes, Riding Mountain, and La Mauricie National Parks.

STAFF TRAINING IN HERITAGE MANAGEMENT AND PROTECTION

Workshops and formal training sessions have improved resource protection training for staff since 1990.

In January 1993, Parks Canada held a national workshop on ecosystem management for its managers. Initiatives to understand ecological integrity and ecosystem management were reported from all regions of the country.

Comprehensive training programs in natural resource protection and management are being developed and delivered to park warden recruits and existing staff. A new entry-level training program for recruiting wardens, for example, started in 1994.

There has also been a significant increase in staff training associated with application of the new Cultural Resource Management Policy. Orientation courses and workshops are being held throughout the six departmental regions.

REGIONAL INTEGRATION

Regional integration is becoming increasingly important for parks and historic sites. Major regional integration issues include the following:

- transboundary environmental problems such as ecosystem stresses from external sources,
- biodiversity protection,
- tourism growth or reduction,

- regional services for visitors, and
- economic impacts.

To address these issues, Parks Canada employs a management-planning process. It is also participating in or promoting other mechanisms that foster regional integration: biosphere reserves, model forest projects, ecological science centres, and greater ecosystem projects.

A good example of Parks Canada's recent efforts to promote regional integration is the Greater Fundy Ecosystem Project. At the core of the project is Fundy National Park — a protected "island."

The purpose of the Greater Fundy Ecosystem (GFE) research group established to manage the project is to design a landscape that permits ecological integrity to be maintained, while at the same time sustaining the economic vitality of the area.

At present, 18 research projects are under way within the GFE project. Participants include provincial agencies, industry, six universities and colleges, and four federal agencies. This includes membership in the Natural Resources Canada-led Fundy Model Forest, which is aimed at achieving integrated resource management and sustainable forest harvesting.

In November 1993 the Greater Fundy Ecosystem was designated an "anchor site" for the Atlantic-Maritime Ecozone Ecological Science Centre. As such, the GFE becomes recognized as one of the key sites for ecological research and long-term environmental monitoring in the Maritimes.

APPENDIX E

CONDITION OF BUILT HERITAGE

This table compares 1990 and 1994 condition ratings for built heritage resources at individual national historic sites. The comments section has been used to

indicate if conservation is scheduled for the immediate future or to provide information that elaborates on the condition.

Historic site	Condition rating		Comments
	1990	1994	
Signal Hill			
Powder magazine	p	g	
Cabot Tower:			
interior	p	g	
exterior	g	g	
Queen's Battery (reconstructed)	f	f	Stabilization in progress.
Small powder magazine	p	g	Refurbished in 1991.
Castle Hill			
Rubble-masonry walls	f	f	
Grounds	f	f	Historic French Trail closed to public as it is hazardous.
Cape Spear			
Lighthouse	g	g	
World War II battery	p	p	Unstabilized section to be stabilized in 1994.
Pathways and grounds	f	f/g	Restoration work begun.
L'Anse aux Meadows			
Reconstructed sod houses	g	p	Several wood rafters and column bases have failed. Temporary stabilization done.
Hopedale Mission			
Old Mission Building	g	g	
Port au Choix			
Lighthousekeeper's house			Destroyed by fire in 1991.
Hawthorne Cottage			
House	f	f	
Grounds	g	g	

Key:

g = good, f = fair, p = poor, n/a = not applicable

* changes since 1990 highlighted in bold type

** because rating systems have changed, 1990 data for Ontario canals are not given, since they are not comparable with 1994 data

Historic site	Condition rating		Comments
	1990	1994	
Fort Anne			
Officers' quarters	g	g	
Powder magazine	g	g	
Sally port	f	f	
Landscape	f	f	
Fort Edward			
Blockhouse	f	f	
Earthworks	g	g	
Fortress of Louisbourg			
Original walls in Dauphin outer defences	p	p	Very fragile condition.
Entrenchments	p	p	
Fortification remains	f	f	In fairly stable condition but subject to severe coastal erosion.
Reconstructed buildings	p	p	Extensive deterioration of reconstructed buildings with exposed timber framing. Mitigation measures under way.
Port-Royal			
Habitation	g	g	
Grassy Island	n/a	n/a	
St. Peters Canal			
Marine structures	g	g	
Lockmaster's house	p	p	
Halifax Citadel			
North magazine	f	f	Severe spalling on walls.
North end of west wall	p	p	
Front courtyard wall	p	p	
North ravelin escarp	p	p	
Gorge wall	p	p	
Northeast salient: escarp courtyard	p	g	Stabilized in 93-94.
Northwest demi-bastion	p	g	Stabilized in 93-94.
North courtyard	p	g	Stabilized in 93-94.
Counterescarp	p	g	Stabilized in 93-94.
Town clock	f/g	g	
Marconi			
Tower base	g	g	
Prince of Wales Tower	g	g	
Alexander Graham Bell			
Tetrahedral sitting shelter	f	f	
York Redoubt			
Martello Tower remains	f	f	Under wooden shelter.
Powder magazine	p	p	Powder magazine flooded and entrance walls deformed.

Historic site	Condition rating		Comments
	1990	1994	
York Shore Battery	p	p	Roof and observation tower in danger of collapse.
Old gorge wall	p	p	Parging on wall failed, allowing water to infiltrate.
Other built heritage resources	p/f	f	Substantial protection and interim stabilization measures in 91-92.
Fort McNab			
Casemate barracks	p	p	Severe deformation along the concrete facing wall. Bracing and short-term stabilization was carried out in 92.
Other buildings	p	p	Practically all need reroofing. Interim protection done.
Georges Island			
Escarp wall	p	p	Collapsed in number of places, some masonry reinforced in 91-93.
Gun emplacements	p	p	
Other built heritage resources	p	p	Assets in stable condition, roofs replaced or repaired. Interim stabilization measures ongoing.
Grand-Pré			
Memorial Church	g	g	Reroofing scheduled for 94-95.
Forge	p	g	
Memorial garden	g	g	Shoreline slumping occurring along edges of ponds, some old trees need attention.
Fort Beauséjour			
Masonry structures	p	g	Barracks and other masonry structures stabilized.
Earthworks	g	g	Ramparts and ditch stabilized.
Casemates	p	f	Repointed, stabilized in 90-91.
Fort Gaspareaux	n/a	n/a	
Beaubears Island	n/a	n/a	
Carleton Martello Tower			
Tower	f	g	Masonry surface repaired and repointed and concrete repaired in 91-92.
St. Andrews Blockhouse			
Blockhouse	g	p	Damaged by fire in August 1993. Remains are sheltered and existing materials are protected in stable condition. Restoration work in 94-95.
Fort Amherst–Port-la-Joye	n/a	n/a	
Ardgowan			
Building	g	g	
Landscape	g	g	

Historic site	Condition rating		Comments
	1990	1994	
Province House Building	g	g	
Forges du Saint-Maurice Ruins	p	g	Stabilized; ruins of blast furnace and Big House covered by volumetric constructions evoking former functions in order to protect and display the ruins.
Fort No. 1 at Pointe de Lévy Right side	g	g	Casemates stabilized; part of walls and ditch, two caponiers, two casemates, and a powder magazine restored and the other casemates renovated.
Left side	p	p	Temporary stabilization.
Fort Lennox Stores, north and west casemates	p	g	Restored.
Officers' quarters	p	f	Restoration under way.
Barracks	p	f	Masonry to be restored and services to be upgraded.
Guardhouse	f	f	Masonry to be restored and services to be upgraded.
Rampart and moat	p	p	Slow deterioration of rampart by erosion; bridges to be restored.
Fort Chambly Stone fort	g	f	
Remains of curtain wall	g	f	Remains vulnerable to Richelieu River flooding.
Coteau-du-Lac Ruins and lock canal	g	f	
Reconstructed blockhouse	f	f	Façade showing signs of deterioration.
Carillon Canal New canal works	f	p	Ongoing repairs.
Remains of 1825 lock	p	p	
Superintendent's house	p	p	Temporarily stabilized in 1993.
Chambly Canal Locks 1, 2, & 3	p	g	Restored.
Lock 9	p	g	Restoration under way.
Lock 4	p	p	
Lock 5	g	p	
Two small lodges	p	g	Restored.
Saint-Ours Canal Lock	p	f	Restored in 1990.
Lachine Canal Navigation structures (walls and locks)	p	p	

Historic site	Condition rating		Comments
	1990	1994	
Fortifications of Québec	2/3 g	3/4 g	Stabilization of almost three-quarters of fortifications, now in good condition.
Parts not stabilized	p	p	
Casemated flank of the Coteau de la potasse; tenailles of the Nouvelles Casernes	p	p	Deterioration despite regular maintenance.
Esplanade powder magazine, St. Jean Bastion	p	g	Powder magazine totally restored and renovated. Fortification walls stabilized.
Cartier-Brébeuf	n/a	n/a	
Maillou House	f	p	Deterioration of stone walls, particularly wall of main façade.
Carillon Barracks	g	f	Building generally in good condition. Leaking roof and weak floor structure.
Louis-Joseph Papineau	f	f	Masonry in fair condition; main façade, a wooden facing with false front, in very poor condition. Other parts of building generally in good condition.
Pointe-au-Père Lighthouse	g	g	
Lighthouse	f	f	Restoration under way.
Foghorn building	g	g	
Grosse Île	f	f	Overall relatively well preserved.
Small buildings	p	p/f	Stabilized from 1989 to 1992; temporary protection provided in order to slow excessive rate of deterioration of buildings.
Large buildings	p		
Laundry and disinfection building	p	p	Restoration and renovation are under way.
Battle of the Windmill	p	g	Masonry repointed and cleaned.
Tower	f	g	
Grounds	g	g	
Fence	f	f	Will be upgraded 1994.
Stairs			
Navy Island	n/a	n/a	
Fort George		g	
Original powder magazine		g	
1815 cottage	f	g	
Blockhouse #2	p	p	
Guardhouse	p	p	
Other reconstructions	f	f	

Historic site	Condition rating		Comments
	1990	1994	
Fort Malden			
Barracks	f	f	New roof needed.
Museum building	f/g	f/g	
Other buildings	f/g	f/g	New roof needed.
Fort Mississauga			
Tower	p	p	Much parging on tower gone and most of underlying brick exposed. Parts of foundation need repointing.
Fort St. Joseph			
Masonry ruins	g	g	
Blockhouse	g	g	
Southwold Earthworks	n/a	n/a	
Fort Wellington			
Blockhouse	g	g	
Officers' quarters	g	g	
Original latrine	p	g	Restored.
Earthworks	p	g	Stabilized.
Palisade and main gate	p	g	Restored.
Grounds	g	g	
Kingston Martello Towers			
Murney Tower	f	f	50% of counterescarp requires work. Emergency repairs done.
Shoal Tower	p	p	Masonry badly deteriorated. Excessive moisture infiltration.
Cathcart Tower	f	f	Stable.
Rideau Canal Condition Rating for 1994 only			
Buildings	85	in good condition	
	20	in fair condition	
	9	in poor condition	
Locks	36	in good condition	
	9	in fair condition	
	6	in poor condition	
Dams and weirs	40	in good condition	
	4	in fair condition	
	9	in poor condition	
Retaining walls	33	in good condition	
	6	in fair condition	
	7	in poor condition	

Historic site	Condition rating		Comments
	1990	1994	
Wharves		31 5 6	in good condition in fair condition in poor condition
Bridges		20 0 0	in good condition in fair condition in poor condition
Trent-Severn Waterway Rating for 1994 only			
Buildings		148 9 1	in good condition in fair condition in poor condition
Locks		35 6	in good condition in fair condition
Hydraulic lift locks		2	in good condition
Dams		122 12	in good condition in fair condition
Bridges		39 3 3	in good condition in fair condition in poor condition
Retaining and entrance walls		82 16	in good condition in fair condition
Banks		22 5	in good condition in fair condition
Wharves		7 2 1	in good condition in fair condition in poor condition
Woodside			
House	g	g	New roof 1993.
Grounds	g	g	
Laurier House			
Building	g	g	
Grounds	g	g	Windows require work.
Sir John Johnson House			
House	p	p	
Carriage shed	p	p	
Bois Blanc Island Lighthouse			
Lighthouse	f	p	

Historic site	Condition rating		Comments
	1990	1994	
Butler's Barracks			
Commissariat	f	f	Leaky chimney and fire stair deterioration.
Barracks	f	f	Requires log replacement and clapboard stabilization.
Other buildings and grounds	g	g	
Point Clark Lighthouse			
Lightkeeper's house	g	g	
Shed	f	f	Stable.
Bellevue House			
House	g	f	Condition under investigation.
Landscape	g	g	
Inverarden House			
House	g	g/f	Water seepage into basement.
Queenston Heights			
Battlefield	f	f	
Redan battery	g	g	
Brock's Monument	f	f	
Sault Ste. Marie Canal			
Canal	p	p	Collapsed 1987.
Superintendent's house	f	f	Basement flooding caused by hydro station.
Other buildings	f/g	f/g	Reroofed 1992; repointed 1994.
Prince of Wales Fort			
Perimeter wall	p	p	Some sections on verge of collapse.
Interior ruins	f	f	
York Factory			
Depot building	p	g	Stabilized in 93-94.
Powder magazine	f	f	Requires stabilization.
Lower Fort Garry			
Fur loft	f/g	g	Repointed.
Other buildings	g	g	
Walls	p	g*	Restoration and repointing ongoing; *reconstruction abandoned because it compromised commemorative integrity.
Grounds	f	f	
St. Andrew's Rectory			
Building	g	g	
Landscape	g	g	
Riel House			
House	g	f/g	
Grounds	g	g	
Linear Mounds	n/a	n/a	
The Forks	n/a	n/a	

Historic site	Condition rating		Comments
	1990	1994	
Battle of Fish Creek	n/a	n/a	
Fort Battleford			
Stockade	p	g	
Sick-horse stable	p	g	
Barracks #5	p	g	
Guard house	p	g	
Commanding officer's residence	f	p	Exterior restoration planned for 94-95.
Officers' quarters	f	g	Restored 93-94.
Batoche			
Church	g	g	
Rectory	g	g	
Caron house	p	g	
Grounds	f	g	Rifle pits and military earthworks fragile. Pathways established in 92-93 to protect earthworks.
Fort Walsh			
1940s reconstructions	p/f	f	Stabilized.
Officers' quarters	g	g	Log repairs in 94-95.
Palisade	g	g	
Fort Espérance	n/a	n/a	
Fort Pelly	n/a	n/a	
Motherwell Homestead			
Buildings	g	g	
Landscape	g	g	
Dawson City Buildings			
Bank of British North America	g	g	
Post office	g	g	
Winauts Store	g	g	
Robert Service Cabin	g	g	
Klondike Thawing Machine Company	g	g	
Daily News Building	g	g	
Ruby's Place	g	g	
Commissioner's residence	g	g	
NWMP married quarters	g	g	
Billy Bigg's Blacksmith Shop	g	g	
Palace Grand	f	f	
Red Feather Saloon	p	g	
S.S. Keno			
Vessel	p	p	Sprinkler system planned for 94-95. Bow rapidly deteriorating, decks leaking. Stabilization work needed on deckhouses and hull. New steel foundation installed under hull.

Historic site	Condition rating		Comments
	1990	1994	
S. S. Klondike Vessel	p	p	Decks recanvased. Water infiltration mitigated around doors and windows.
Dredge No. 4 Superstructure	p	p	Dredge floated and relocated on new crib.
Hull	p	f	Hull found in better condition than expected.
Gold Room at Bear Creek Building	f .	g	Stabilized 92-93.
Jasper House	n/a	n/a	
Rocky Mountain House Chimneys	p	p	
Yellowhead Pass	n/a	n/a	
Cave and Basin Bathing pavilion	g	g	
Wood deck	p	g	
Pool	g	f	Closed 1993. Will not be re-opened.
Banff Park Museum Building	g	g	
Fort Langley Original store house	g	g	
Reconstructed buildings	g	g	
Palisade	p	g	Palisade repaired, some sections replaced.
Fort St. James Fur warehouse and men's house	g	f	Sill logs in jeopardy due to high moisture content.
Other buildings	g	g	
Reconstructed wharf, tramway platforms, fences	p	f/g	
Fisgard Lighthouse Lighthouse	f	f	
Fort Rodd Hill Plotting room	p	p	Portion of the stone camouflage on plotting room's exterior wall in danger of collapse and deteriorating.
Commandant's house	f	g	
Other structures	f	f	
Earthworks and walls	g	g	
St. Roch Vessel	p	g	New crib supporting system installed.

Historic site	Condition rating		Comments
	1990	1994	
Chilkoot Trail Trail	p	p	Trail and associated campgrounds showing effects of erosion, poor drainage and visitor impact.
St. Andrews Church	p	p	
Kitwanga Fort	n/a	n/a	
Gulf of Georgia Cannery Main cannery building	g	g	Sprinkler system completed 90-91. Stable. Roof movement being monitored.
Fish-unloading dock	g	g	
Oil-drum storage building	p	g	Pilings stabilized 1990.
Auxiliary structures	p	f	Stabilized.
Ninstints	p	p	Remaining Haida dwelling houses and totem poles are in extremely fragile condition, and are continually deteriorating.

APPENDIX F

COLLECTIONS — REPORT ON REMEDIAL WORK

NHS	1990	1994
Cape Spear	collection requires remedial conservation	- conservation on-going - 10% of collection requires remedial conservation within four years
Hawthorne Cottage	collection requires remedial conservation	- conservation on-going
Fort Anne	collection requires remedial conservation	- some progress made
Fortress of Louisbourg	half of display collection requires remedial conservation; metal archaeological artifacts require remedial conservation	- hundreds of windows have been covered with UV protective panels; this has helped retard the deterioration of fabrics, tapestries, paper, and paintings - storage areas have been upgraded - no other change reported
Port-Royal	(1992) some remedial conservation required	- conservation on-going; all urgent conservation completed
Halifax Citadel	some remedial conservation required	- no change reported
Alexander Graham Bell	75% of collection requires remedial conservation	- conservation on-going; was a priority project during period covered by this report - 35% of collection requires remedial conservation within four years
York Redoubt	rifled muzzleloaders require remedial conservation	- no change reported
Georges Island	ordnance requires remedial conservation	- some cannons surface-coated as interim measure
Grand-Pré	parts of collection require remedial conservation	- collection in good condition
Fort Beauséjour	collection requires remedial conservation	- conservation on-going - 10% of collection requires remedial conservation within four years
Sir Wilfrid Laurier	textiles deteriorated	- no change reported
Fort Malden	part of collection requires remedial conservation	- no change reported
Rideau Canal	part of collection requires remedial conservation	- no change reported
Laurier House	furniture and furnishings require remedial conservation	- conservation begun late 93/94 - new heating, ventilation, and air-conditioning system installed to control temperature and humidity, thus providing environmental protection for collection

NHS	1990	1994
Sault Ste. Marie Canal	(1992) part of collection requires remedial conservation	- collection has been consolidated into one building - UV-filtering plexiglass and curtains installed to protect from light
Prince of Wales Fort	original guns corroded	- no change in condition; various treatments have been tested without hoped-for results; new treatment to be tested on two cannons this summer - immediate outlook not good, as 94/95 marks financial end of project.
York Factory	collection requires remedial conservation	- treatment in progress
Lower Fort Garry	part of collection requires remedial conservation	- treatment in progress
Fort Battleford	collection requires remedial conservation	- some artifacts treated
Fort Walsh	part of collection requires remedial conservation	- some artifacts treated
Rocky Mountain House	collection requires remedial conservation	- no change reported
Banff Park Museum	collection requires remedial conservation	- specimens cleaned, storage revamped, and monitoring system set up
Fort Langley	part of collection requires remedial conservation	- no change reported; objects scheduled for treatment in 94/95
Fort St. James	collection requires remedial conservation	- no change reported
Fort Rodd Hill	part of collection requires remedial conservation	- no change reported
<i>St. Roch</i>	part of collection requires remedial conservation	- no change reported
Gulf of Georgia Cannery	collection (including most machinery) requires remedial conservation	- specifications for the work have been completed

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